



NAVAL POSTGRADUATE SCHOOL

MONTEREY, CALIFORNIA

MBA PROFESSIONAL REPORT

**Analysis of Naval NETWAR FORCEnet Enterprise: Implications for
Capabilities Based Budgeting**

**By: Steven R. McKinney and
Brian T. Sandidge
December 2006**

**Advisors: Lawrence R. Jones and
Rene Rendon**

Approved for public release; distribution is unlimited.

THIS PAGE INTENTIONALLY LEFT BLANK

REPORT DOCUMENTATION PAGE			Form Approved OMB No. 0704-0188	
Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instruction, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188) Washington DC 20503.				
1. AGENCY USE ONLY (Leave blank)		2. REPORT DATE December 2006	3. REPORT TYPE AND DATES COVERED MBA Professional Report	
4. TITLE AND SUBTITLE: Analysis of Naval NETWAR FORCEnet Enterprise: Implications for Capabilities Based Budgeting			5. FUNDING NUMBERS	
6. AUTHOR(S) McKinney, Steven R. ; Sandidge, Brian T.				
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Naval Postgraduate School Monterey, CA 93943-5000			8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING / MONITORING AGENCY NAME(S) AND ADDRESS(ES) PEO C4I/Space Space and Naval Warfare Systems Center (SPAWAR) 53560 Hull St San Diego, CA 92152-5001			10. SPONSORING / MONITORING AGENCY REPORT NUMBER	
11. SUPPLEMENTARY NOTES The views expressed in this report are those of the author(s) and do not reflect the official policy or position of the Department of Defense or the U.S. Government.				
12a. DISTRIBUTION / AVAILABILITY STATEMENT Approved for public release; distribution is unlimited			12b. DISTRIBUTION CODE A	
13. ABSTRACT (maximum 200 words) Analysis was conducted to understand ADNS, NNFE, and the goals of the enterprise system. Following development of this background information and projecting how ADNS is likely to succeed in the NNFE framework, two fundamental research questions were addressed. The first question: Does the enterprise system reduce the discrepancies between PPBES and the acquisition decision process for both budgeting and defense asset acquisition? The second question: To what extent can the discrepancies and resulting problems discovered during this research project be resolved to improve national defense budgeting within NNFE and asset acquisition decision effectiveness in DoD? Finally, we present our conclusions from analysis and discuss the feasibility of a notional model to help PEO prioritize program decisions.				
14. SUBJECT TERMS Naval Netwar Force Net Enterprise, Capabilities-Based Budgeting, program execution, budgeting for national defense			15. NUMBER OF PAGES 77	
			16. PRICE CODE	
17. SECURITY CLASSIFICATION OF REPORT Unclassified	18. SECURITY CLASSIFICATION OF THIS PAGE Unclassified	19. SECURITY CLASSIFICATION OF ABSTRACT Unclassified	20. LIMITATION OF ABSTRACT UL	

THIS PAGE INTENTIONALLY LEFT BLANK

Approved for public release; distribution is unlimited

**ANALYSIS OF NAVAL NETWAR FORCENET ENTERPRISE:
IMPLICATIONS FOR CAPABILITIES BASED BUDGETING**

Steven R. McKinney, Lieutenant, United States Navy
Brian T. Sandidge, Captain, United States Air Force

Submitted in partial fulfillment of the requirements for the degree of

MASTER OF BUSINESS ADMINISTRATION

from the

**NAVAL POSTGRADUATE SCHOOL
December 2006**

Authors:

Steven R. McKinney

Brian T. Sandidge

Approved by:

Professor Lawrence R. Jones
Principal Advisor

Professor Rene Rendon
Associate Advisor

Robert N. Beck, Dean
Graduate School of Business and Public Policy

THIS PAGE INTENTIONALLY LEFT BLANK

ANALYSIS OF NAVAL NETWAR FORCENET ENTERPRISE: IMPLICATIONS FOR CAPABILITIES BASED BUDGETING

ABSTRACT

Analysis was conducted to understand ADNS, NNFE, and the goals of the enterprise system. Following development of this background information and projecting how ADNS is likely to succeed in the NNFE framework, two fundamental research questions were addressed. The first question: Does the enterprise system reduce the discrepancies between PPBES and the acquisition decision process for both budgeting and defense asset acquisition? The second question: To what extent the discrepancies and resulting problems discovered during this research project be resolved to improve national defense budgeting within NNFE and asset acquisition decision effectiveness in DoD? Finally, we present our conclusions from analysis and discuss the feasibility of a notional model to help PEO prioritize program decisions.

THIS PAGE INTENTIONALLY LEFT BLANK

TABLE OF CONTENTS

EXECUTIVE SUMMARY	1
I. INTRODUCTION.....	3
A. PURPOSE.....	3
B. BACKGROUND ON BUDGET PROCESS AND JCIDS.....	4
C. THE JOINT CAPABILITIES INTEGRATION & DEVELOPMENT SYSTEM (JCIDS).....	5
D. THE ACQUISITION PROCESS	7
E. PLANNING, PROGRAMMING, BUDGETING AND EXECUTION SYSTEM (PPBES).....	8
F. PROBLEM IDENTIFICATION	10
G. PEO C4I/SPACE PROGRAMS	11
H. IMPLEMENTATION OF NNFE.....	14
I. SUMMARY	15
II. AUTOMATED DIGITAL NETWORK SYSTEM.....	17
A. PROGRAM BACKGROUND	17
B. SUMMARY	26
III. NAVY NETWAR FORCENET ENTERPRISE (NNFE).....	27
A. NNFE BACKGROUND	27
B. SUMMARY	34
IV. ADNS WITHIN NNFE.....	37
A. PROGRAM AND ENVIRONMENT	37
B. CRITERIA FOR SUCCESS	40
C. POTENTIAL FOR EXPEDITED PROGRAM.....	41
D. PROGRAM RISKS	44
E. SUMMARY	45
V. ANALYSIS OF ADNS WITHIN NNFE	47
A. FORCENET CAPABILITY PLAN (FCP).....	47
B. ADNS SUCCESS WITHIN NNFE	48
C. SUMMARY	50
VI. IMPLICATIONS FOR CAPABILITIES BASED BUDGETING	51
A. NNFE ONLY A PARTIAL SOLUTION	51
B. NNFE AS LINK BETWEEN JCIDS AND PPBES	54
C. NOTIONAL DECISION SUPPORT MODEL	57
D. SUMMARY	58
VII. CONCLUSION	59
A. SUMMARY OF FINDINGS.....	59
B. CONCLUSION	60
C. AREAS FOR FURTHER STUDY	60

LIST OF REFERENCES	63
INITIAL DISTRIBUTION LIST	65

LIST OF FIGURES

Figure 1.	Automated Digital Network System (ADNS) Costs	19
Figure 2.	Congressional Action Proposed Budget 2006	20
Figure 3.	ADNS Program Schedule	21
Figure 4.	ADNS Fielding Plan (Part A)	22
Figure 5.	ADNS Fielding Plan (Part B)	23
Figure 6.	Incremental Development of ADNS.....	24
Figure 7.	Acquisition Using the Business Approach	26
Figure 8.	Critical Assumption for Common Analytical Framework.....	32
Figure 9.	Determining Which Capabilities to Align	34
Figure 10.	JTRS as an Expedited Acquisition Process	42
Figure 11.	POM 2008 Options	44
Figure 12.	Risk Comparison of POM 2008.....	45
Figure 13.	Commercial vs. DoD Oversight Environments	53
Figure 14.	NNFE "Insertion" within PPBES.....	55
Figure 15.	Proposed FCP Process	56

THIS PAGE INTENTIONALLY LEFT BLANK

EXECUTIVE SUMMARY

Analysis was conducted to understand ADNS, NNFE, and the goals of the enterprise system. Following development of this background information and projecting how ADNS is likely to succeed in the NNFE framework, two fundamental research questions were addressed. The first question: Does the enterprise system reduce the discrepancies between PPBES and the acquisition decision process for both budgeting and defense asset acquisition? The second question is to what extent the discrepancies and resulting problems discovered during this research project be resolved to improve national defense budgeting within NNFE and asset acquisition decision effectiveness in DoD?

Within the context of JCIDS, PPBES, and the acquisition system as a whole, some core issues have been identified that are obstacles to sound investment decisions. Problems identified include:

- No common definition for capability
- Lack of metrics for investment effectiveness
- Stakeholders misalignment with enterprise
- Competition between programs
- Turnover and accountability

Recent efforts have been undertaken by the Navy to organize within an enterprise construct in order to make smarter investment decisions, moving toward true capabilities based budgeting. Programs within the PEO C4I/Space portfolio fall under the Naval Netwar FORCEnet Enterprise (NNFE), and the organization is working toward compliance with the Navy initiative.

It is likely that programs such as ADNS will succeed within the NNFE framework. However, NNFE at present does little to address the problems identified. NNFE will force stakeholders to focus on and develop a common capability framework, but this is only a partial enabler of capabilities based budgeting. NNFE does not account for over-optimistic cost estimates, and does not address the root causes which include

misalignment of enterprise goals among stakeholders, lack of accountability for underperforming programs, and disconnects between JCIDS and PPBES. Over time, NNFE may result in programs that are essentially "capabilities based," but this does not equate to better execution of programs or maximization of marginal value.

A notional decision support model is discussed, but implementation is not feasible until underlying system deficiencies have been resolved. More study is needed to determine if NNFE can address these deficiencies, or if a different course of action is required.

I. INTRODUCTION

A. PURPOSE

Due to the changes made in defense acquisitions in 2003, the Navy and the Joint community are increasingly stressing the acquisition of transformational capabilities. However, many of the PEO C4I/Space's supporting processes, particularly planning, programming, and budgeting, are still focused on individual programs or systems. For this reason, PEO C4I/SPACE has experienced problems for improving advanced planning, programming, and budgeting efforts. Their goal is to more effectively budget and obtain funding for cross-cutting capabilities within a portfolio of individual programs. The Navy PEO C4I/SPACE recently expressed a desire for the ability to quantify improvement in war-fighting effectiveness to make investment decisions on a portfolio of programs that maximize the associated marginal value.¹

Analysis was conducted to understand ADNS, NNFE, and the goals of the enterprise system. Following development of this background information and projecting how ADNS is likely to succeed in the NNFE framework, two fundamental research questions were addressed. The first question: Does the enterprise system reduce the discrepancies between PPBES and the acquisition decision process for both budgeting and defense asset acquisition? The second question is to what extent can the discrepancies and resulting problems discovered during this research project be resolved to improve national defense budgeting within NNFE and asset acquisition decision effectiveness in DoD? Finally, we present our conclusions from analysis and discuss the feasibility of a notional model to help PEO prioritize program decisions.

The purpose of the project is to provide perspective on how problems identified might be addressed — in essence to describe and analyze options to be considered for problem resolution. The intent is not to make recommendations for DoD action. However, to the extent feasible for the purpose of this student research project, hypothesized root causes of problems will be identified, and possible solutions will be

¹ Teleconference with PEO C4I/Space representative. April 21, 2006.

proposed and analyzed. The first chapter will discuss the background on the budget process and JCIDS. The second chapter provides the background on the ADNS program. The third chapter discusses the new business model; NNFE and how it is supposed to operate. The fourth chapter observes ADNS within the constraints of the enterprise model. The fifth chapter provides analysis of ADNS with NNFE. The sixth chapter discusses implications for capabilities based budgeting within the NNFE enterprise model. The seventh chapter presents our conclusions along with our summary of findings, followed by suggested areas for further study.

B. BACKGROUND ON BUDGET PROCESS AND JCIDS

The continued Global War on Terrorism (GWOT) is drastically increasing the annual Department of Defense (DoD) budget. This increase is part of a cycle that can be traced throughout the history of the United States during times of war. When historical military costs are analyzed, the peaks and valleys generally coincide with large military buildups directly attributable to periods of war. Although it is easy to understand the causes of the trend, it is a little more difficult to distinguish the reasons to explain the continuous increase of DoD costs overall. Most economists argue that this steady increase is due to inflation and other variables such as growth in Gross Domestic Product (GDP) or Gross National Product (GNP). These trends in cost growth typically encompass discretionary as well as non-discretionary governmental funds. An example of growth in a discretionary fund is the cost and appropriations associated with the military and DoD. An example of non-discretionary funds growth are the costs associated with Social Security or Medicare.

When the historical costs are viewed objectively, the skeptic can make relative sense of the increases over the years and during times of war. However, a type of funding that is not normally shown or separated in these graphs are the supplemental funds that are appropriated to DoD periodically. These funds are made available by Congress to sustain military operations such as those in Iraq and Afghanistan, which are separate from regular appropriations. In other words, DoD budgets for and spends what is needed to continue to provide normal operations and purchases, while the supplemental

funds directly support operations that are not planned or budgeted in advance of the fiscal year. For example, the DoD budget for 2007 is roughly \$439 Billion, while supplementals are scheduled to be \$50 Billion. This brings the entire monies needed for DoD in 2007 to almost \$500 Billion.² Supplementals have been enacted by Congress to provide extra monies to support the GWOT. These funds were first made available following the terrorist attacks on the US on September 11, 2001 (9/11). Due to this attack, the subsequent war and military actions, a need developed for increased defense spending that was not previously anticipated or budgeted.

The attacks on 9/11 and the entrance of a new era in warfare generated a new way of thinking within the Pentagon. It was apparent that more defense dollars were needed to carry out the war on terror. Increased spending would eventually create gaps and reductions in other areas of defense spending. The plan for transformation by Secretary of Defense (SECDEF) Donald H. Rumsfeld was quickly distributed throughout DoD. Along with the idea of transformation came the entrance of a new way to conduct acquisitions in DoD. This was the Joint Capabilities Integration & Development System (JCIDS). The new concept was an attempt to reduce redundancy and duplication of effort, thereby making acquisition more efficient and reducing costs. It would also focus attention on developing capabilities that can be employed and utilized jointly by all the services (Army, Navy, Air Force, Marines).

C. THE JOINT CAPABILITIES INTEGRATION & DEVELOPMENT SYSTEM (JCIDS)

The use of JCIDS as the tool for DoD acquisitions replaced the old requirements generation system and was implemented to help achieve Rumsfeld's goal of transforming the DoD's business practices and war fighting capabilities. JCIDS was adopted in 2003 by the Joint Chiefs of Staff to increase efficiency, flexibility, creativity and innovation in the acquisition process. The underlying principle of JCIDS was that it would enable the

² Los Alamos Study Group, United States Military Spending, February 10, 2006 by Damon Hill and Greg Mello, <http://72.14.209.104/search?q=cache:Xle90j9yOd0J:www.lasg.org/USMilitarySpending.pdf+DoD+supplemental+for+2007&hl=en&gl=us&ct=clnk&cd=4> (October 2006).

services to define their capability needs while still focusing on national strategy. This system was designed to force early involvement of all participants (military and contractors) in defining and incrementally redefining capabilities to ensure that any capability gap was identified and an agreement for the solution was made.³ The DoD uses the Joint Requirements Oversight Council (JROC) along with the Functional Capabilities Board (FCB) to assess and determine where capability gaps exist. These committees also aid in the decision-making process that determines which programs to fund that will accurately eliminate those identified gaps. The appeal of JCIDS was that it would formulate top-down requirements generation. This process would be used in conjunction with the formal defense acquisition process and the Planning, Programming, Budgeting and Execution System (PPBES). This transformation would focus on better and more efficient products. Prior to JCIDS, the defense acquisition process was driven from the bottom-up and was not focused on a jointly functioning military. The process was effectively "program centric."

The JCIDS process would flow from the national military strategy and would be pushed down to the joint vision, then on to the joint concept of operations, then to the joint concepts integrated architecture, and finally ends with the identification of joint capabilities. This process would ensure all capabilities are jointly born. Within the process there are various analyses to be conducted which are in place to force improved efficiency. These are the functional area analysis, functional needs analysis, functional solutions analysis, and the post independent analysis—all of which are responsible to verify joint capabilities. A major issue with the JCIDS process is the overlap it has with PPBES. While PPBES is calendar driven, JCIDS is event driven. The combination of these two processes tends to result in failure with meeting the desired outcome. To reduce these failures, the Under Secretary of Defense for Acquisitions, Technology, and Logistics (USD AT&L) recommends that the government attempt to hold personnel accountable.⁴ While this is common in the private sector business market, it is not so

³ US DoD: DoD receives new capabilities development system. (2003). *M2 Presswire*, 1.

⁴ 2006 Acquisition Symposium Lecture. May 17, 2006. Honorable Kenneth J. Krieg, USD (AT&L) Lecture.

common within the government acquisitions process. Furthermore, the analyses that monitor effectiveness described above normally take 12 to 18 months. Though the results may be effective, the time lag results in inefficiency. Government acquisitions can evolve and overcome these efficiencies, but doing so requires the following: investment meetings with all responsible participants, accountability for failures, capital to fund these interactions, and firmly established achievable requirements.⁵

D. THE ACQUISITION PROCESS

The acquisition process is broken down into schedules and milestone events that are monitored by the acquisition chain of authority. The official chain of authority is the Defense Acquisition Executive (DAE), the Component Acquisition Executive (CAE), the Program Executive Officer (PEO), and finally the Program Manager (PM).⁶ The particular authority over a given program depends on the level of significance of that individual program. This is usually governed by the dollar amount or cost of the program being monitored. For example, three distinct milestone decisions exist within the acquisition framework. They are milestone decision authority (MDA) A, B, and C, each of which must be approved before a program can advance to the next stage of development. The acquisition process includes the following stages: concept refinement, milestone A decision, technology development, milestone B decision, system development and demonstration, milestone C decision, production and deployment, and finally operations and support – to include disposal. The amount of oversight is the result of the milestone review process, which is fundamental to the program management model preferred by Congress and DoD. By eliminating programs that do not meet the criteria set by the MDA, the large percentages of costs on programs that are not justified will be eliminated.⁷

⁵ 2006 Acquisition Symposium Lecture. May 17, 2006. Honorable Kenneth J. Krieg, USD (AT&L) Lecture.

⁶ DoDD 5000.1, May 12, 2003. <http://www.dau.mil/> (November 2006).

⁷ Defense Acquisition Guidebook, Chapter 3.1.2. Lifecycle Cost Categories and Program Phases. December 16, 2004. <http://www.dau.mil/> (October 2006).

E. PLANNING, PROGRAMMING, BUDGETING AND EXECUTION SYSTEM (PPBES)

Planning, Programming, and Budgeting System (PPBS) was renamed to include Execution (PPBES) in 2003 to coincide with the transformation of JCIDS. The PPBES process allows for systematic multi-service budgeting within DoD to formulate the President's budget. The President's budget proposal is submitted to Congress for the appropriation of funds. It is important to note that Congress has the authority to modify the proposed budget as deemed necessary. For example, in the 2007 budget proposal, the President requested a 2.2 percent pay raise for the military, but Congress enacted a 2.7 percent pay increase.⁸ This is an important event that illustrates the role of politics within the budget process, especially considering that 2006 is an election year. Unlikely considerations in this process are where this extra 0.5 percent will come from or what program will lose funding to account for the pay increase.

The PPBES process consists of four phases. First is the Planning phase. The planning phase begins with the overarching National Security Strategy (NSS) which is established by federal agencies that determine possible threats to national security.⁹ This strategy alerts the military service commanders to the goal or objectives set out by the President and his administration. It is the Chairman of the Joint Chiefs of Staff (CJCS) who collects input from the military services and addresses which joint capabilities will meet the NSS objectives. This information is passed on to the SECDEF who then formulates the Defense Planning Guidance (DPG) and the Future Year Defense Plan (FYDP).¹⁰

Next is the Programming phase which uses the DPG and the FYDP to provide guidance for preparing a Program Objectives Memorandum (POM). The purpose of the POM is for each military service to determine what funds will be needed for the FYDP in

⁸ House committee approves civilian-military pay parity. June 7, 2006, by Karen Rutzick. <http://www.govexec.com/dailyfed/0606/060706r1.htm> (October 2006)

⁹ J. L. McCaffery & L. R. Jones, (2004). *Budgeting and financial management for national defense*. Greenwich: Information Age Publishing.

¹⁰ J. L. McCaffery & L. R. Jones, (2004). *Budgeting and financial management for national defense*. Greenwich: Information Age Publishing.

order to achieve the NSS. This is accomplished by breaking down the capabilities needed to achieve the NSS to each individual capability that encompasses the whole. In other words, the service POM is made up of many individual POMs. Then each service POM is carefully reviewed by the Joint Chiefs of Staff (JCS) to verify compliance with the DPG and overall capability effectiveness.¹¹

The Budgeting phase is based on the selected programs from each service POM and is then calculated to determine the entire cost. This cost is combined to form the Budget Estimate Submission (BES) and is put into action during the POM cycle which is implemented during even numbered years. For example, the basic FYDP encompasses six fiscal years while the BES and POM cover the even numbered years during the FYDP. The odd numbered years during the FYDP are used for evaluation and, if necessary, for adjusting the planned budget to meet the NSS. If major issues are identified, each submitting service component will address the stated issue. If no conclusion is reached, the SECDEF or Office of the SECDEF Comptroller will make the final decision regarding the issue. The final budget is then sent to the Office of Management and Budget (OMB), which reviews and submits to the President. The President then reviews and sends the proposed budget to Congress for appropriation.¹²

The final phase in PPBES is execution. During the execution of the budget, approval must be made by Congress to spend the appropriated monies on programs that have been authorized. This authorization breaks down when the spending will occur, for example by month or quarter.¹³ The House and Senate Arms Services Committee (HASC & SASC) authorizes expenditures. The House and Senate Appropriations Committee (HAC & SAC) appropriates funds to be spent. There are severe criminal and civil penalties (heavy fines and imprisonment) for violating the authorizations and

¹¹ J. L. McCaffery & L. R. Jones, (2004). *Budgeting and financial management for national defense*. Greenwich: Information Age Publishing.

¹² J. L. McCaffery & L. R. Jones, (2004). *Budgeting and financial management for national defense*. Greenwich: Information Age Publishing..

¹³ J. L. McCaffery & L. R. Jones, (2004). *Budgeting and financial management for national defense*. Greenwich: Information Age Publishing.

appropriations, which include Anti-Deficiency Act (ADA) violations. Therefore, each PM or PEO must ensure compliance of their spending to avoid any violation or inefficiency.

To be a successful or effective PM or PEO within the boundaries of the JCIDS process requires a full understanding of the game you are playing. Furthermore, a PM or PEO must anticipate what is or will be required at the top levels of government in order to fund his/her program or group of programs. For example, the phrase “joint capability” is the key phrase that must be ingrained in the submission for funding for a new program. However, there is a problem when the PM is attempting to compete for funds with a program that is not new nor has been developed with joint capabilities in mind. Another problem lies within the term “capability”. What capability means to a software designer is very different than what capability means to a foot soldier in Iraq. The acquisition process requires full interaction of these two customers to provide the best solution to a given problem. In today’s JCIDS process, a successful end product requires a close interaction of user and contractor who often have very different interpretations of capability.

F. PROBLEM IDENTIFICATION

In the 2006 Acquisition Symposium in Monterey, California, the Honorable Kenneth J. Krieg, USD AT&L, addressed the capability issue. Mr. Krieg stated that the DoD acquisitions community faces three challenges in the future. One of those challenges is establishing a universal definition of the term “capability.” This problem stems from the varying definitions throughout the chain of command. For instance, the PEO may often try to build a program that he/she believes meet a certain capability, but this capability may not appease decision makers at the Pentagon. The result is that when this issue surfaces the dilemma is extended out in time to be solved at a later date.¹⁴ The truth is that the issue is never really resolved and money and energy are wasted.

¹⁴ 2006 Acquisition Symposium Lecture. May 17, 2006. Honorable Kenneth J. Krieg, USD (AT&L) Lecture.

The problem of not having a universal definition of capability is also present with regard to the contractors who support military acquisitions. A contractor cannot design or build an item or weapon without knowing what it needs to accomplish. According to a representative of a large U.S. military contracting company, it is imperative that the services discuss operational capabilities and include industry partners in those discussions.¹⁵ Therefore, it is vital that all members of the acquisition community agree upon a desired level of the capability being targeted. This matter becomes more complex when a PM's job is to make a portion of the overall end product. How does this PM address the capability of his/her portion? Can he/she fight for this program's portion of the funding? This is where a comprehensive understanding of the importance of each program in relation to the success of the entire system is crucial. This is especially significant in dealing with system programs, where a Family of Systems (FOS) or System of Systems (SOS) is developed from many separate systems. Each system has its own PM and funding, but one cannot function without the other, therefore each are of equal value.

G. PEO C4I/SPACE PROGRAMS

In an effort to overcome this problem, the Program Executive Officer for Command, Control, Communications, Computers, Intelligence and Space (PEO C4I/SPACE) has implemented a joint-working relationship with the Air Force, Army and other joint agencies in support of joint development.¹⁶ By working with other services, the task of defining the desired capability is better achieved. As stated earlier, the development of FOS or SOS is extremely complex. Therefore, this joint interaction early in the process helps to overcome future unexpected issues. One such success is Common Link Integration Processing (CLIP). CLIP is a transformational capability that will provide tactical networking. This program is a joint Air Force and Navy program

¹⁵ Discussion, understanding capabilities key for sea basing, official says. (2006). *Defense Daily*, 229(12), 1.

¹⁶ Military Information Technology Online Archives, Interview with Dennis M. Bauman, Program Executive Officer, C4I & Space, December 22, 2004. *Bauman was interviewed by MIT Editor Harrison Donnelly*. <http://www.military-information-technology.com/article.cfm?DocID=758> (October 2006).

between PEO C4I/Space and the Air Force Electronic Systems Command. The Army is also monitoring the effort and may soon join as a full member.¹⁷

Although JCIDS is a top-down requirements process, it is still important for all commanders to be involved and develop cost-effective ways to achieve the stated objectives. If not, funds will not be issued to the command and the objective will be given to a more capable one. This is an ongoing struggle and fight to receive resources from a limited source of funds. To overcome this obstacle and ensure funding, the PEO C4I/Space has reorganized its organization to achieve three objectives: First, to focus on the delivery of capabilities instead of individual systems; next, to have a larger role in the C4I systems for new construction platforms to promote interoperability and sustainability; and finally, to achieve increased organizational efficiencies.¹⁸

Although these organizational changes seem effective on the surface, they do not force existing programs to adapt and change to this architecture. The PEO C4I/Space is responsible for many individual programs, each with their respective PM, some of which have been in existence for more than ten years. These programs were not developed jointly nor do they have any joint capacity, but are still required in order to meet the specific missions of the Navy. These programs are in bitter competition with newer programs that are joint in nature. In essence, the problem is a matter of prioritizing which programs to fund. This causes PMs to waste valuable time and resources in an effort to sustain their program. For instance, the PM for Automated Digital Network System (ADNS) has been incrementally installing this system on Navy ships since the 1990s {ADNS will be explained in greater detail as it will be used as a “case study” analysis for the new enterprise system}. Incremental development is the process of adding technology to selected ships as the technology becomes available. The ADNS program

¹⁷ Military Information Technology Online Archives, Interview with Dennis M. Bauman, Program Executive Officer, C4I & Space, December 22, 2004. *Bauman was interviewed by MIT Editor Harrison Donnelly.* <http://www.military-information-technology.com/article.cfm?DocID=758> (October 2006).

¹⁸ Military Information Technology Online Archives, Interview with Dennis M. Bauman, Program Executive Officer, C4I & Space, December 22, 2004. *Bauman was interviewed by MIT Editor Harrison Donnelly.* <http://www.military-information-technology.com/article.cfm?DocID=758> (October 2006).

historically benefits the Navy, but must compete in an acquisition process where joint operability and capabilities are the keys to funding.¹⁹

Currently, PEO C4I/Space is developing a steady state of new systems that are attempting to fill a capability gap. The desired outcome is the determination of a war-fighting capability to drive system advances, which is how JCIDS is designed to operate. It is evident that there is an issue with the JCIDS process regarding existing systems technology. The underlying issue is the attempt to accurately and effectively prioritize and manage these programs. Also, in the fight for funds, the PM must submit his/her POM that will be in competition with the joint programs. If these existing programs lose the fight, the program may be terminated. This could result in millions of dollars of spent funds without receiving any benefit or substantial contribution to the military. It is important to note that the elimination of a program could mean the termination of some civilian employees and most certainly the termination of the PM. This result adds to the competition for the funding of programs. According to a PM under the PEO C4I/Space, any and all necessary actions will be taken to ensure the survival of a program.²⁰ It is clear that in the current acquisition environment, program managers are motivated to perpetuate their programs without regard to the enterprise as a whole.

Another variable in the complex process that adds to inefficiency is the Resource Officer (RO). The RO is a representative whose role is to manage the funds authorized and to allocate those funds to the respective programs. The main problem is that in most instances the RO is someone new to the government acquisition process and does not understand the PPBES, JCIDS, or acquisition systems. The RO relies on the PM to educate them on the processes to adequately perform their job. In turn, the PEO and each PM rely tremendously on this individual to keep their funding in order. It typically takes a year or more for the RO to learn the job. This is extremely inefficient, especially when the average RO position is rotated about every two years. According to one PM under

¹⁹ Teleconference with PEO C4I/Space representative. April 28, 2006.

²⁰ Teleconference with PEO C4I/Space representative. May 2, 2006.

PEO C4I/Space, the average RO produces about three to six months worth of valued work performance before he/she moves on to another job.²¹

H. IMPLEMENTATION OF NNFE

The PEO C4I/Space is currently engaged in actions that may resolve some of the issues described above, one of which is transition to the Naval NETWAR FORCEnet Enterprise (NNFE). NNFE is a collaborative effort that includes NETWARCOM as the requirements lead, OPNAV (N6F) as the resource sponsor and TEAM SPAWAR (including PEO C4I/Space, PEO Space Systems and PEO Enterprise Information Systems) as the provider of capability.

This process will include the use of the above mentioned commands, which make up the Navy Enterprise Triad, to clearly define the roles and responsibilities of each in order to collectively enhance the delivery of network centric operations to the fleet and the Joint war-fighter.²² The use of the Navy Enterprise Triad will also force a common definition for the term ‘capability’. This will bring the architecture models into a common vocabulary and allow for standardization. This standardization will provide a tool to measure success from one POM year to the next. Currently, no such models measure success at this level of the acquisition process.

Currently, there are no metrics in place for measuring effectiveness from one POM cycle to the next; the only measurement of performance is whether the program got funded or not. For example, during the POM 2008 (POM 08) cycle, representatives from PEO C4I/Space literally flew to Washington, D.C. and camped at the Financial Management and Budget (FMB) office to fight for funding. This was done because it was rumored that PEO C4I/Space was going to have funds cut in order to support other programs. Due to the C4I/Space representatives’ presence and hounding of the FMB officials, funding was not cut. This persistence may have succeeded in continued funding, but what programs other than PEO C4I/Space were not funded and why not?

²¹ Teleconference with PEO C4I/Space representative. May 2, 2006.

²² Teleconference with PEO C4I/Space representative. April 28, 2006.

According to a representative from PEO C4I/Space, they were successful in securing their funds solely because of their physical presence in the FMB office and annoying the officials.²³ If this is the case, it is easy to see how the human factor can be successful outside the boundaries of the official JCIDS process. The goal of this research is to aid in the development of strategies and to create a management matrix based on historical POMs, for PEO C4I/Space to achieve more successful POMs in the future. The following paragraphs identify the problems that will be researched and is the formal proposal for our MBA project.

Analysis was conducted to understand ADNS, NNFE, and the goals of the enterprise system. Research was qualitative in nature and was based on basic principles from the fields of program management, organizational behavior, strategic management, and corporate best practices. The business environment was analyzed to determine impacts to investment decisions. Stakeholder analysis was also performed, focusing on incentive structures in place for key stakeholders in the acquisition process.

With these qualifications we attempt to address the question, given the current system, customer requirements, a resource constrained environment, and organizational inertia, of whether it is possible for the PEO to make smarter investment decisions and prioritize programs to provide capability more effectively through the POM process.

I. SUMMARY

The ultimate goal for PEO C4I/SPACE is to effectively budget and obtain funding for cross-cutting capabilities within a portfolio of individual, diverse programs. The problem will be first approached by analysis of current acquisition processes, organizations, and customers. Programs that operate within the milestone driven JCIDS receive funding through the calendar driven PPBES. Individual programs operate at different phases of the JCIDS process, largely operating independently from one another, and in some cases provide redundant capabilities. This phenomenon was supposed to be eliminated with the emergence of JCIDS. The key element to decision making in the

²³ Teleconference with PEO C4I/Space representative. May 2, 2006.

DoD financial resource system is the POM process. This process is employed at all levels of DoD to resource defense asset acquisition—from the DAE to the PM. In the war-fighter user community, a recent re-organization of the OPNAV Staff will be analyzed to identify potential impacts on both PPBES and POM input and acquisition decision making. Past problems encountered by PEO C4I/SPACE in the POM process will be analyzed and characterized according to root causes of problems that result from discrepancies between PPBES and acquisition decision processes. This leads into a case study of ADNS and how it is projected to succeed within NNFE.

II. AUTOMATED DIGITAL NETWORK SYSTEM

A. PROGRAM BACKGROUND

Automated Digital Network System (ADNS) is one of the programs that make up the portfolio of programs of the Program Executive Officer for Command, Control, Communications, Computers, Intelligence and Space (PEO C4I/SPACE). ADNS is coded PMW160 (Networks, Information Assurance and Enterprise Services Program Office). It is part of the Integrated Shipboard Network System (ISNS) and serves as the Sensitive Compartmented Information (SCI) network link between ships, aircraft, and ground suites.

In keeping with the Navy's Net-centric Warfare concept, ADNS is the communication force multiplier which adapts shipboard Local Area Networks (LAN) communication requirements to an "ADNS optimized satellite constellation".

ADNS is the tactical wide area network (WAN) for Navy internet protocol (IP) network operations, which includes SIPRnet (classified networks), NIPRnet (unclassified networks), and Non-U.S. LANs. The key enabler for developing FORCEnet capabilities which depend upon a robust, dynamic, adaptable, flexible, adjustable, survivable, secure, and reconfigurable communications infrastructure.²⁴

ADNS is the Navy key enabler that allows for Joint Concept for Global Information Grid (GIG) Network Centric Operations and Joint Navy Operating Concept (JNOC) requirements to be achieved.²⁵

ADNS is dependent upon governing direction and guidance as well as other programs:

- N6/N7 FORCEnet Requirements/Capabilities and Compliance Policy {27 May 2005}
- Net-Centric Enterprise Solutions for Interoperability (NESI) Guidance
- Net-Centric Enterprise Services (NCES) Guidance

²⁴ Net-Centric Warfare (N71) POM=08 Program Review, 1 December 2005. N71C118.

²⁵ Net-Centric Warfare (N71) POM=08 Program Review, 1 December 2005. N71C118.

- GIG NetOps CONOPS (Concept of Operations)
- GIG Information Assurance Initial Capabilities Document (ICD)
- GIG Mission Area ICD
- Message traffic highlighting 7th Fleet's top 10 C4I priorities (specifically ADNS}
- Navy IPv6 (Internet Protocol version 6) Transition Plan Version 1.2 which establishes technical strategy guidelines on architecture, standards, and implementation engineering.
- DoD IPv6 Transition Plan Version 1.0 guidance provided to component services.²⁶

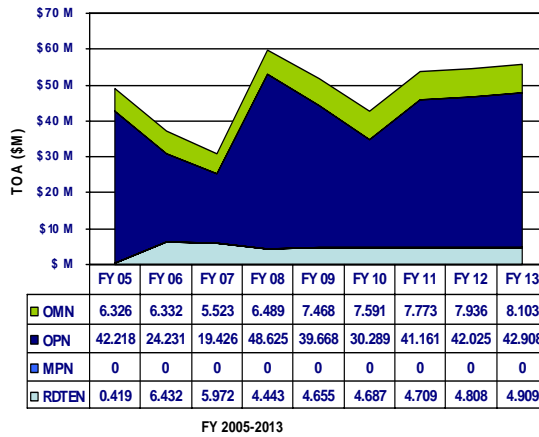
ADNS is not only dependent on other programs, but it is also a building block on which other capabilities and systems rely to meet stated objectives. ADNS provides the communications infrastructure for Navy units (Ships, Subs, and Aircraft) to pass and share IP data. ADNS also enables joint, allied, and Coalition interoperability by providing this infrastructure. This allows direct voice to these end users, provides quality of service to ensure accuracy, and provides time sensitive strike, surveillance, operational pictures, and intelligence to support the war-fighter.²⁷

The program profile of ADNS for Program Review (PR) 07 showed Future Year Defense Plan (FYDP) Fiscal Year (FY) 08-13 as \$28.221M (million) for Research, Development, Test & Evaluation (RDT&E); \$244.675M for Other Procurement Navy (OPN)/Aircraft Procurement Navy (APN)/Weapons Procurement Navy (WPN); and \$45.360M for Operations and Maintenance Navy (OMN). The normal unit cost range for ADNS is \$112,000 to \$500,000 and nominal installation cost range is \$30,000 to \$505,000. The following chart indicates the costs associated with ADNS per category thru FY13.

²⁶ Net-Centric Warfare (N71) POM=08 Program Review, 1 December 2005. N71C118.

²⁷ Net-Centric Warfare (N71) POM=08 Program Review, 1 December 2005. N71C118.

Program Profile



P/E	L/RDTE	APPN	DESCRIPTION	FY08
0204163N	3050-00	OPN	Ship Comm Auto	34.2
0204163N	3050-05	OPN	Ship Comm Auto	14.4
0204163N	00725	RDTE	Fleet Telecom	4.4
0204163N	4A6M	OMN	ADNS	6.5
				59.6

FY08 Actual Cost Structure

	Cost Category	RDTEN	OMN	WPN	OPN	SCN
Product	Product Develop	1.0	0.0	0.0	0.0	0.0
	Product Procure	1.2	0.0	0.0	19.8	0.0
	Installation	0.0	0.0	0.0	13.9	0.0
	Product	2.2	0.0	0.0	33.7	0.0
Support	Software	0.0	1.0	0.0	0.0	0.0
	Training	0.0	1.1	0.0	1.2	0.0
	Integ Log Support	0.2	2.3	0.0	2.4	0.0
	Support	0.2	4.3	0.0	3.6	0.0
T & E	Development Test	0.5	0.0	0.0	0.0	0.0
	OT/OPEVAL	0.5	0.0	0.0	0.0	0.0
	Other	0.0	0	0.0	0.0	0.0
	T & E	1.0	0.0	0.0	0.0	0.0
Mgmt	Eng Support	0.7	0.7	0.0	5.7	0.0
	Mgmt Support	0.3	0.5	0.0	4.2	0.0
	Travel	0.0	0.0	0.0	0.0	0.0
	Other	0.0	1.0	0.0	1.5	0.0
	Management	1.0	2.2	0.0	11.3	0.0
	TOTAL:	\$4.4	\$6.5	\$0.0	\$48.6	\$0.0

After: Brief: Net-Centric Warfare (N-71) POM-08 Program Review//Automated Digital Network System (ADNS)//Robert Bradley/NC71C118, 1 December 2005.

Figure 1. **Automated Digital Network System (ADNS) Costs**

During the Congressional review of the proposed budget in 2006, a budget for \$254.0M was requested for procurement of ADNS and Communication Automation. It is important to note that the House Armed Service Committee (HASC) and the Senate Armed Service Committee (SASC) authorize spending. While the House Appropriations Committee (HAC) and Senate Appropriations Committee (SAC) actually control how funds are dispersed. The following chart shows that HAC made a mark and recommended a reduction of \$52M to provide a lower rate of growth more in line with pushing funds to out years.

Appn	PB	HASC	SASC	Auth Conf	HAC	SAC	APPN Conf
OPN	254.0	254.0	254.0		202.0	239.0	

After: Brief: Net-Centric Warfare (N-71) POM-08 Program Review//Automated Digital Network System (ADNS)//Robert Bradley/NC71C118, 1 December 2005.

Figure 2. **Congressional Action Proposed Budget 2006**

This problem indicates just the tip of the iceberg. By making reductions in other programs such as SAC recommendation of a reduction of \$15M to Tactical Switching, this mark will impact ADNS because it is part of the SCI Network and ISNS. These examples illustrate how interconnected these programs are and that a solitary cut can have lasting effects on multiple programs. Therefore, it is vital to the program for each mark to be analyzed and a reclama issued back to FMB or OSD to educate those financially responsible of the significance of any budget cuts.

ADNS is incrementally funded. This reduces the costs of trying to outfit every Navy platform that requires ADNS in one fiscal year. Also, this allows for spiral development to be implemented in the RDTE phase, which allows for the latest and greatest variant to be installed of the given platform during that particular year. ADNS is currently budgeting for Increment III. The Chief of Naval Operation's (CNO) vision includes a 1000 ship Navy and a global network for maritime security. N6, or Navy Communications, play a huge role in the CNO's vision. N6 will accomplish their tasks through assured communications/networking and effective/efficient end-to-end delivery. N6 will be responsible for connecting the 1000 ship Navy and providing knowledge on demand.²⁸ Increment III of ADNS will be the link that ensures that the CNO's vision is met and the FORCEnet challenge is overcome.

"FORCEnet is defined as the operational construct and architectural framework for Naval Warfare in the information age, integrating warriors, sensors, command and control, platforms and weapons, into a networked, distributed force."²⁹

²⁸Brief: POM-08 N6 Sponsor Program Proposal, Admiral Mullen 19 April 2006.

²⁹Brief: POM-08 N6 Sponsor Program Proposal, Admiral Mullen 19 April 2006.

The following charts illustrate the program schedule and increment installations of ADNS thru FY13.

Program Schedule (Baseline / Actual)

	FY04	FY05	FY06	FY07	FY08	FY09	FY10	FY11	FY12	FY13	FY14	FY15
Milestones	INC I FOC	INC II IOC	INC II FRPDR		INC III MS C	INC III FRPD				INC III FOC		
JCIDS Documentation		INC II CPD	INC III CDD (Proposed)	INC III CPD (Proposed)								
Test & Certification events		INC II Combined DT/OT			INC III Combined DT/OT (Proposed)							

IOC: INC I FY97

FOC: INC III 4Q FY15

After: Brief: Net-Centric Warfare (N-71) POM-08 Program Review//Automated Digital Network System (ADNS)//Robert Bradley/NC71C118, 1 December 2005.

Figure 3. ADNS Program Schedule

Program Current Fielding Plan

EQUIPMENT NAME: ADNS I, II, IIa, III

PLATFORM		PRIOR YEARS	FY06	FY07	FY08	FY09	FY10	FY11	FY12	FY13	TO COMPLETE
AGF	P	2									Continuing
	I	2									Continuing
AOE	P	8									Continuing
	I	8									Continuing
AS	P	2		1				1		1	Continuing
	I	2		1					1	1	Continuing
ARS	P	4									Continuing
	I	4									Continuing
CG	P	41	3	3	6	4	5	3	5	2	Continuing
	I	32	10	5	6	0	4	5	7	3	Continuing
CV	P	2									Continuing
	I	2									Continuing
CVN	P	13	7	3	2	4	3	1			Continuing
	I	12	5	5	2	2	3	4			Continuing
DD	P	19									Continuing
	I	19									Continuing
DDG	P	88	8	3	9	18	8	15	14	5	Continuing
	I	65	23	13	9	6	13	19	11	11	Continuing
FFG	P	36	3	2	18				4	1	Continuing
	I	31	5	5	9	9			3	2	Continuing
LCC	P	3	2		1						Continuing
	I	2	2	1		1					Continuing

After: Brief: Net-Centric Warfare (N-71) POM-08 Program Review//Automated Digital Network System (ADNS)//Robert Bradley/NC71C118, 1 December 2005.

Figure 4. ADNS Fielding Plan (Part A)

Program Current Fielding Plan

EQUIPMENT NAME: ADNS I, II, IIa, III

PLATFORM		PRIOR YEARS	FY06	FY07	FY08	FY09	FY10	FY11	FY12	FY13	TO COMPLETE
LHA	P	7	3		1			1			Continuing
	I	7	2	1		1		1			Continuing
LHD	P	12	6	2	2	2	2	4	1		Continuing
	I	11	4	4	3		3	4	2		Continuing
LPD	P	19	1	1	2	1		1	3		Continuing
	I	18	1	2	2		1	1	1	2	Continuing
LSD	P	21	8	1		1	1	4	4	2	Continuing
	I	20	7	3		1		4	3	4	Continuing
MCM	P	14	1		5				12	2	Continuing
	I	14	1		2	3			9	5	Continuing
MHC	P	8									Continuing
	I	8									Continuing
WHEC	P										Continuing
	I										Continuing
SSN-688	P	52									Continuing
	I	52									Continuing
SSN-21	P	3									Continuing
	I	3									Continuing
SSBN	P	2									Continuing
	I	2									Continuing
TOTAL	P	355	45	22	41	37	20	25	37	7	
	I	313	64	37	34	32	34	29	28	18	

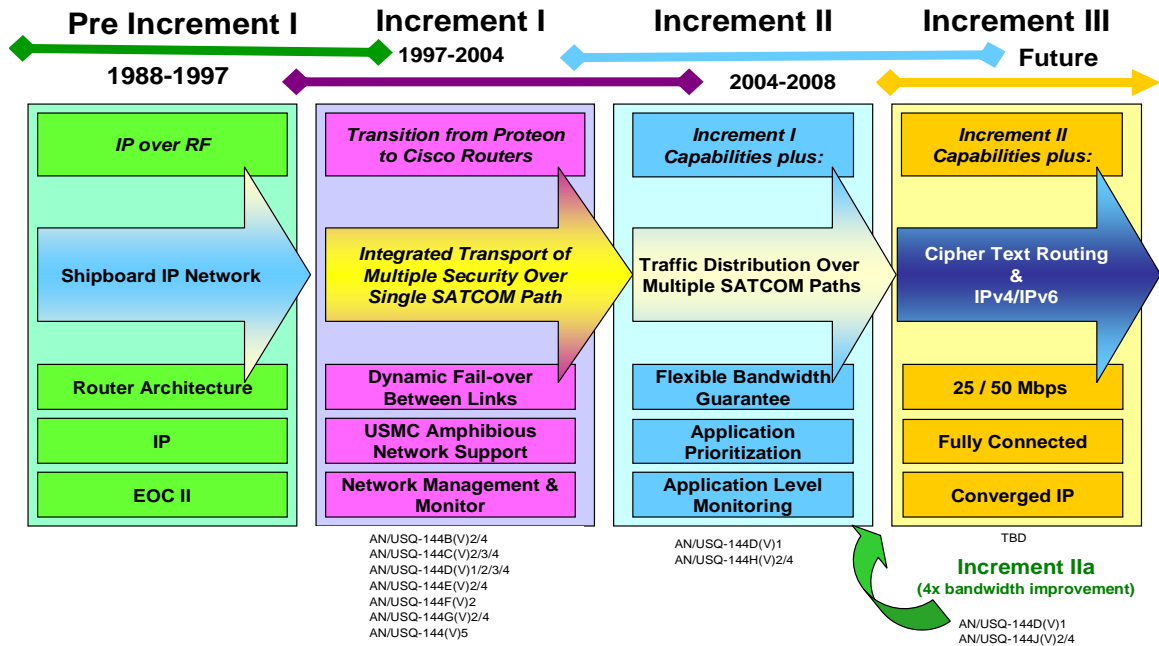
After: Brief: Net-Centric Warfare (N-71) POM-08 Program Review//Automated Digital Network System (ADNS)//Robert Bradley/NC71C118, 1 December 2005.

Figure 5. ADNS Fielding Plan (Part B)

The development strategy of ADNS is end-to-end capability and is accomplished through incremental design as mentioned previously. As described above, ADNS is currently in the process of designing increment III. Increment I and II were designed, developed, and built by the government. Increment III is currently being designed and developed by contractors which are divided into two engineering development models and two shore demonstration systems.³⁰ Once this increment is budgeted and the contractor tests these systems, the Low Rate Initial Production (LRIP) will begin. After successful evaluations of the LRIP and all associated issues or problems are corrected, then full rate production will commence. This is a lengthy and time consuming process, but this process increases the probability of success for a program. Therefore, all programs evolve in a similar fashion. The chart below helps to visualize the history of ADNS and its associated increments.

³⁰Brief: Program Executive Office C4I and Space, PMW160. ADNS INC III ACT 10 July 2006, CDR Scott Heller.

ADNS Incremental Development



After: Brief: Program Executive Office C4I and Space, PMW160. ADNS INC III ACT 10 July 2006, CDR Scott Heller.

Figure 6. Incremental Development of ADNS

As stated earlier, ADNS is one program that comprises the portfolio of programs that is managed by the PEO for C4I and Space. There are many stakeholders involved with ADNS, however the key ones are the Program Executive Officer (PEO), the Program Manager (PM), and the Assistant Program Manager (APM). To get ADNS through Increment III, the JCIDS process must be completed. This includes Concept Refinement, Technology Development, System Development and Demonstration, Production and Deployment, Operations and Support, and finally disposal. Before this Increment can pass from one stage to the next, it must meet certain predetermined criteria. This is called the Milestone Decision. The Milestone Decision is determined by the Milestone Decision Authority (MDA) who verifies that all conditions have been met prior to advancing to the next stage of development. ADNS is an ACAT III program; therefore the MDA is the PEO himself. (For more details on acquisition processes refer to Chapter I).

One of the major problems confronting the key stakeholders in ADNS has been and most likely will continue to be the annual budget issues that take arise. These differences of opinions not only pit PM against PM but also totally different acquisitionists as well. The recent budget deficits and the war on terrorism have added to the strains put on financing programs within DoD. Following the attacks of September 11, 2001, Congress has supplied supplemental funds to the annual budgets to cover the costs that were not previously budgeted in the war on terror. It is widely believed that 2006 will be the last year to receive supplemental funding. All costs associated with the war on terror will come from each individual service's annual budget. This will create more of a scramble for PEOs and PMs to prioritize which programs to fund. This fight over funding is vital to a system or program. The loss of a program degrades capabilities and costs many people their jobs. Therefore, any and all tricks will be used to ensure funding; this includes contacting Congressmen and Senators to act on one's behalf. A specific example was provided that further illustrates this point.

Congress, FMB, and OSD have historically made cuts against the proposed budgets submitted by each service. Due to the strain of not enough money to fund everything that is requested, a new approach must be undertaken. This process is the business model for DoD in the budgeting process. This idea was developed by Vice Admiral Crenshaw, N8, who has developed the Enterprise system. ADNS is part of the Navy NETWAR FORCEnet Enterprise (NNFE) which will be used to help guide the budget process for PEO C4I & Space in the future. The chart below shows the acquisition strategy for ADNS using the business approach.



Acquisition Strategy (Business Approach)



Current Contracts

Contractor	Product/Service	Total Task Order Value	Contract Type	Competed	Period of Performance	Approved AP
NETCENTS/ General Dynamics	ADNS INC III Modeling and Simulation	\$100,000	Firm Fixed Price	Yes	11/05 - 4/06	N/A
NETCENTS/ Northrop Grumman	ADNS INC III Modeling and Simulation	\$100,000	Firm Fixed Price	Yes	11/05 - 4/06	N/A
NETCENTS/ Centech	ADNS INC III Modeling and Simulation	\$100,000	Firm Fixed Price	Yes	11/05 - 4/06	N/A
NETCENTS/ Lockheed Martin	ADNS INC III Modeling and Simulation	\$100,000	Firm Fixed Price	Yes	11/05 - 4/06	N/A
NETCENT/NCI	ADNS INC III Modeling and Simulation	\$100,000	Firm Fixed Price	Yes	11/05 - 4/06	N/A

New Procurements

Contractor	Product/Service	Total Contract Value	Contract Type	Competed	Period of Performance	Approved AP
NETCENTS/TBD	EDM and SDS development	\$5,500,000	Fixed Price Incentive	Yes	09/06-09/07	Yes
NETCENTS/TBD	LRIP and FRP Production	TBD	Firm Fixed Price	No	10/07-03/09	Yes

After: Brief: Program Executive Office C4I and Space, PMW160. ADNS INC III ACT 10 July 2006, CDR Scott Heller.

Figure 7. Acquisition Using the Business Approach

B. SUMMARY

ADNS is an older program that historically has been strictly Navy driven. These prior increments have not had any reason to look beyond benefiting the Navy. Now with the 2003 emergence of JCIDS; it is becoming more and more difficult for a program to survive without having jointness in mind. This is not to say that some programs do not have service specific functions and are still funded, it is merely much more difficult. This point stresses the importance that the PEO and other stakeholders must place on the process in order to stay on track to meet the CNO's strategic vision. This begs the question of how ADNS will succeed within NNFE, which is analyzed in the next section.

III. NAVY NETWAR FORCENET ENTERPRISE (NNFE)

A. NNFE BACKGROUND

Navy NETWAR FORCENet Enterprise or NNFE is a concept that has been introduced to the Navy budgeting process or PPBES. The Deputy Chief of Naval Operations Integration of Capabilities and Resources (OPNAV N8) is developing an enterprise process to aid DoD budgeters develop a more public sector business model than the current historical bureaucratic process in the U.S. DoD. This operating concept divides the warfare enterprises into five areas: The Naval Air Enterprise (NAE), the Surface Warfare Enterprise (SWE), the Under Sea Enterprise (USE), the Navy NETWAR FORCENet Enterprise (NNFE), and the Navy Expeditionary Combat Enterprise (NECE).³¹

One of the goals of this new process is to cut down on the end-of-year spending that normally takes place just because there is left-over unspent funds. This spending has historically been conducted without any true need; it is merely money that must be spent to prevent a decrease in funds for the following year. This new approach will facilitate a corporate atmosphere with the hopes of reducing unnecessary spending. In essence, everyone is on the same team with the same financial goals, much like a business in concentrating on the end-of-year bottom-line. This process fits into what statisticians and business professionals refer to as Lean Six Sigma.

Lean and Six Sigma are both process improvement methodologies:

- Lean is about speed and efficiency
- Six Sigma is about precision and accuracy leading to data-driven decisions
- Six Sigma will eliminate defects but it will not address the question of how to optimize process flow
- Lean principles exclude the advanced statistical tools often required to achieve the process capabilities needed to be truly 'lean.

³¹Navy PPBE and a Programmatic and Budget View of POM08, July 2006, VADM Crenshaw Video Teleconference with NPS.

- Each approach can result in dramatic improvement, while utilizing both methods simultaneously holds the promise of being able to address all types of process problems with the most appropriate toolkit.
- For example, inventory reduction not only requires reducing batch sizes and linking operations by using Lean, but also minimizing process variation by utilizing Six Sigma tools.³²

This new defense business transformation is now taking hold at all levels of DoD.

Below are the six strategic Business Enterprise Priorities (BEPs) upon which the transformation is focused.

- **Personnel Visibility:** PV is focused on providing ready access to accurate, reliable, and timely personnel information for war-fighter mission planning. This includes access to pay and benefits for DoD personnel and their dependents while ensuring the Combatant Commanders (COCOMs) have the same access to timely and accurate data on personnel and their individual skill sets. This PV allows the way for combat readiness.
- **Acquisition Visibility:** AV is focused on providing an avenue as well as educating pertinent individuals to the acquisition information that is critical to supporting lifecycle management of the department's processes which deliver weapon systems as well as automated information systems (such as ADNS). The benefits of achieving AV are cost savings in consumables, manpower, and support elements.
- **Common Supplier Engagement:** CSE is focused on integrating and aligning policies, processes, data, technology, and people to standardize the process that DoD uses to conduct business with various suppliers including the different policies and procedures for commercial and government suppliers. The benefits of CSE are that the war-fighter gets what they need to accomplish their mission without delays and without creating more work in the form of redundant reporting systems.
- **Materiel Visibility:** MV main focus is on the supply chain and its performance. The benefit of MV is to provide timely and accurate information for the war-fighter as to the location, status, movement, and identity of materiel and supplies.
- **Real Property Accountability:** RPA is focused on informing DoD real-time information on environmental, workforce, hazardous material, and real property assets of which there is legal interest. The benefits of RPA are increased access to this valuable information at a reduced operational cost.

³² U.S. Army Material Command, Ready and Relevant with Lean Six Sigma. Lean Six Sigma Basics. <http://www.amc.army.mil/lean/page.aspx?id=0> (October 2006).

- **Financial Visibility:** FV is focused on providing access to accurate and timely financial information in order to enhance decision and policy makers. One benefit of FV is to provide a standard for DoD Financial Managers (FMs) to use that will enable decision makers to make side-by-side comparisons of programs for accurate evaluations. Another benefit is to provide more financial responsibility which will hopefully result in an auditable DoD budget.³³

These areas of attention have the greatest potential for positive impacts on the Core Business Missions (CBMs) within DoD because they provide BEPs an increased ability to resolve basic questions about its operations (i.e. assets, investments, people and suppliers). Each BEP has outlined measurable program and business capability achievements for the coming years. These programs and goals provide improvement guidelines to each individual department's business infrastructure, which benefits the war-fighter thru the integration of the enterprise business process. This in turn reduces system redundancies which also improves the overall financials of DoD by eliminating programs that are not needed.³⁴ The BEPs aid each department by focusing their attention and resources on areas that have the greatest impact on the enterprise as a whole, the biggest bang for your buck if you will. It is also important to realize that BEPs need to be dynamic and allow for change while in the transformation stage.

The BEP concept was introduced and implemented in September 2005. Some of the successes since then have been that AV and RP met 100 percent of their milestones. Other successes have been accomplished through the implementation of the Enterprise Training Program (ETP).

These successes include:

- **Personnel Visibility**
 - Deployed a capability that allows real-time encounter documentation and enables retrieval of an electronic full medical record at the point of care.
 -

³³ Defense Business Transformation, Business Enterprise Priorities. September 25, 2006. http://www.DoD.mil/dbt/priorities_beps.html (October 2006).

³⁴ Defense Business Transformation, Business Enterprise Priorities. September 28, 2006. http://www.DoD.mil/dbt/priorities_beps.html (October 2006).

- **Acquisition Visibility**
 - Released Defense Acquisition Management Information Retrieval (DAMIR) 2.2.
 - Achieved Full Operational Capability (FOC) with the implementation of USXPORTS V4.0 in January 2006.
- **Common Supplier Engagement**
 - Provided an enterprise-wide view of sourcing data.
 - Deployed web-enabled Taxpayer Identification Number (TIN) validations to ensure data integrity between DoD and the Internal Revenue Service.
 - Implemented first phase of automated contingency contracting capability (CC-SF44) for in-theater use.
- **Materiel Visibility**
 - Completed initial military equipment valuations for 1,101 military equipment acquisitions programs.
- **Real Property Accountability**
 - Achieved initial operating capability for the site Unique Identifier Registry (UID).
- **Financial Visibility**
 - Integrated the Intergovernmental Transactions (IGT) reimbursable process model for intergovernmental transactions in the DEA 3.1.
 - Extended a common DoD financial language by incorporating Standard Financial Information Structure (SFIS) into “blueprints” for all emerging financial management systems and into certifications requirements for 29 existing systems.
 - Completed, ahead of schedule, Standard Fiscal Code compliant General Fund financial reporting capabilities for the Army and six Defense Agencies, which will enable over 78 million transactions per month to be posted to the corporate general ledger.
 - Established SFIS data library via web service capabilities for the DoD enterprise.³⁵

These examples provide evidence of the programs potential as well as guidelines for other enterprise systems such as NNFE to follow.

³⁵ Defense Business Transformation, Business Enterprise Priorities. September 28, 2006. http://www.DoD.mil/dbt/priorities_beps.html (October 2006).

PEO C4I & Space has developed a FORCEnet Capability Plan or FCP in order to meet the requirements of the new NNFE model. The goal of the FCP is to develop the FORCEnet Capability roadmap followed by the process and concluding with the application of the plans. The focus of the initial FCP is on PR 09 with attention on the MDA and maintaining the course in order to meet the CNO's goals for 2014.³⁶ In the effort to meet the CNO enterprise approach, NNFE requires a unifying strategic capability framework. This will be accomplished by the execution plan to ensure the NNFE product line delivers speed to the process. This speed allows the war-fighter to receive the capability when needed, while maintaining effectiveness and efficiency. The common capability framework will include:

Common Framework Team (CFT) 1. This team drives experimentation, technical insertion, Science and Technology (S&T), and long-term capability development. CFT 2 drives the requirements process. CFT 3 provides the foundations for roadmaps and fielding plans. CFT 4 is the basis for resourcing, investment priorities, and POM portfolios. Finally the Metrics Team is the key driver for NNFE domain, other PEO product lines and any mission area.³⁷

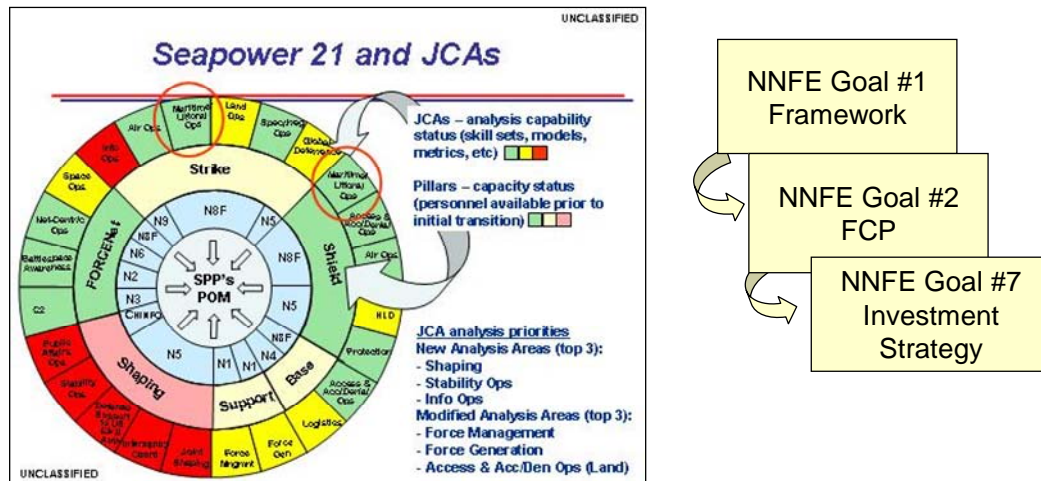
The critical assumption is in conjunction with SeaPower 21 and Joint Capability Areas (JCA) and is outlined in the chart below.

³⁶Brief: FORCEnet Capability Plan (FCP) and Development Process Decision Brief, NNFE Leadership Telecon, 10 July 2006.

³⁷Brief: FORCEnet Capability Plan (FCP) and Development Process Decision Brief, NNFE Leadership Telecon, 10 July 2006.

Critical Assumption

- **OPNAV, CFFC, NNWC, SPAWAR and PEO C4I will establish a “Common Analytic Framework”**



After: Brief: FORCEnet Capability Plan (FCP) and Development Process Decision Brief, NNFE Leadership Telecon, 10 July 2006.

Figure 8. **Critical Assumption for Common Analytical Framework**

Another assumption is that there are not any funds available for the FCP process and product development and that credibility of the FCP will be established in FY 07 that will allow for resources in FY 08. Finally, FCP must influence capability developments (JCIDS, JCD&E), investment priorities (PPBE and S&T), and solution developments (acquisitions).³⁸

Some problems or issues have been identified that the current NNFE leadership are addressing. They include how to bind the FCP process related to decision authority, how to determine which capability to align, planning and management timeframes, product format, and the development process. While some of these decisions can and will be made within PEO C4I & Space, others will not. For example, determining which

³⁸Brief: FORCEnet Capability Plan (FCP) and Development Process Decision Brief, NNFE Leadership Telecon, 10 July 2006.

capability to align to is extremely difficult. The difficulty with this issue is that NNFE is concerned with systems and providing what they believe to be necessary for the war-fighter. However, this decision must be in concert with the goals of the CNO. Without the full cooperation of Big Navy, it will be extremely difficult if not impossible to align the correct capabilities to the NNFE that will result in the desired outcome of the CNO. According to a representative of PEO C4I & Space,

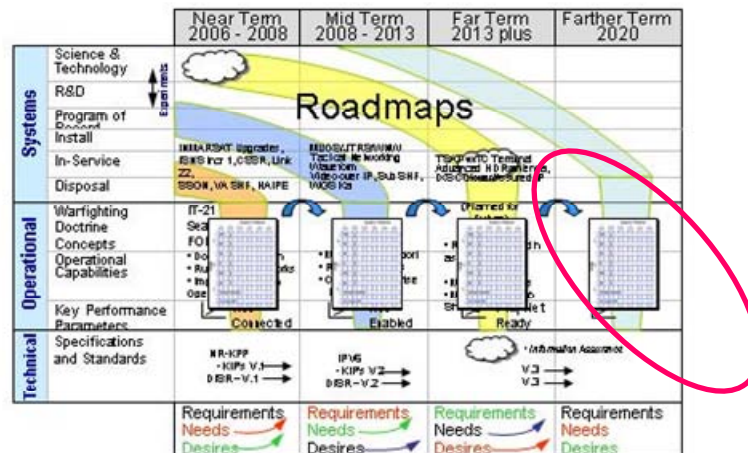
Currently, there is limited visibility into the other enterprise's affairs. Liaisons exist between the camps, but more attention is being applied to maturing the internal processes as opposed to reaching outward. This outward interaction will happen as each of the enterprises mature. Big Navy goals are distributed through vision/strategy papers and POM Serials, but the material is often too strategic in nature to be effectively applied to working level budgeting decisions. The goal on the FORCEnet Capability Development Process (FCDP) and the supporting Common Analytical Framework is to provide a linkage between systems and strategic capabilities.³⁹

Below is a chart that poses the question of which is the correct approach to align capabilities.

³⁹Email communication with representative of PEO C4I & Space, 19 September 2006.

- *DOD JC2 & JNO Capability Portfolios?*
- *N61 POM 08 portfolios?*
- *PEO C4I programs and Roadmap?*
- *FORCEnet Functional Concept Capabilities?*
- *Joint Capability Areas (JCAs)*
- *Develop FORCEnet Initial Capabilities Document*

Building a “Plan”



After: Brief: FORCEnet Capability Plan (FCP) and Development Process Decision Brief, NNFE Leadership Telecon, 10 July 2006.

Figure 9. **Determining Which Capabilities to Align**

B. SUMMARY

As stated earlier, it is the decision of the leadership to maintain NNFE to align with the CNO's vision and to align with the JCAs. Therefore, in order for the NNFE process to be successful in its current form it is vital that CFT 2 maintain a close working relationship with JCAs and SeaPower 21 along with the CNO's staff to maintain the alignment of current requirements. This team leader is the gatekeeper to the remaining teams at PEO C4I & Space. As events unfold and priorities shift, this team needs to be in the loop to advise the remaining teams within NNFE of future problems and concerns. This team also needs to make policy makers aware of the cost of changes in priorities as well as time gaps in full-filling requirements if they change. For these reasons, it is important that CFT 2 own a piece of the FCP according to timeframe (years 3-7) of the plan. Other problems that are likely to arise from using the enterprise or business model are that of accountability and incentives. These areas will be discussed further later in

this study, but suffice it to say that historically, DoD employees, specifically active duty military, rarely stay in a job or position long enough to see a project completely through to completion and fielding or deployment. This results in lack of ownership and responsibility for the continued success of a program. On the other hand, DoD civilians are in positions for longer periods of time and will most likely see a project through the entire process. The issue that needs to be addressed is keeping people on projects throughout the projects lifecycle. This is the only way to create ownership of a program, thereby creating the ability to hold someone personally accountable for the success or failure of a project. Next, ADNS is observed within the enterprise system.

THIS PAGE INTENTIONALLY LEFT BLANK

IV. ADNS WITHIN NNFE

A. PROGRAM AND ENVIRONMENT

An important distinction must be noted between applications of FCP to existing programs versus future programs. ADNS is an example of an existing program that must adapt to the enterprise construct. We attempt to identify potential problems in budgeting and funding for ADNS within the partially constructed enterprise framework and FCP processes. Future capability requirements will be generated that must be funded within NNFE, taking into account existing programs. We will assess whether FCP can provide a seamless link between the program based, calendar driven PPBES and the capability based, milestone driven JCIDS.

As stated earlier, ADNS is an ACAT III program. This means that there is not as much attention given in the budget process to this program category as to that of an ACAT I program (For more information concerning ACAT levels see chapter I). It is important to keep in mind that although ADNS is categorized as a lower echelon program and is not as expensive as many other programs, it is important to Navy acquisition and to PEO C4I & Space. This is due to its large role in accomplishing the capability desired for the fleet in 2014. In order to achieve the desired end-state, ADNS must make successful use of the system in which it must perform (NNFE). Failure to do so will result in the reduction of funding for the program. For this reason the FCP must be constantly monitored and improved as the dynamics of the budgeting process evolve. This evolution includes the Transition to Industry Performers (TIP) concept which enables best value options by rewarding industry innovations. It also stresses performance based strategies for acquisitions, maximizes the use of common C4I equipment, and allows for interoperability.⁴⁰

The PM for ADNS will need to ensure that the program has representatives from each of the four Capability Function Teams (CFT). In addition, each CFT must be fully

⁴⁰Brief: SPAWAR-Industry Executive Network (SIEN), 18 September 2006, Chris Miller, Acting PEO C4I.

integrated and work as a cohesive team. In other words, each must be kept aware of the actions of the other. This will aid in the achievement of the objectives of the FCP which is: to align the NNFE process to a common capability framework, unity of effort.⁴¹ This unity of effort emphasizes the importance of the FCP.

NNFE requires a unifying strategic capability framework, management, and execution plan to ensure NNFE product line delivers speed to capability, effectiveness and efficiency.⁴² By utilizing this unity of effort, FCP should be able to influence JCIDS, PPBES, and the entire acquisition process.

Another issue that arises is that the CFT leaders are generally more senior than the individual PM {depending on ACAT category of program}, but it is still the PM's responsibility to keep the unity. While all CFT leaders have other programs to manage, each PM will inevitably have to convince each CFT leader of the importance of his/her program. As mentioned earlier, CFT 2 will be the gatekeeper between PEO C4I & Space programs and those driving the requirements. Therefore, there will be a lot of strain and pressure on the PM of ADNS to make sure that CFT 2 leader has ADNS on the top of his/her list. Due to these factors, our research presumes that business politics will become a factor in this already convoluted process.

Another major concern for this business enterprise model is that of turnover. Since the beginning of this research project {March 2006}, there have been at least three different individuals who have had the led or have held the position of acquisition director under PEO C4I & Space. This is typical in a military command; however this shifting of personnel has drastic effects on the unity and synergy of an organization, which is so desperately sought after. This phenomenon is quite different than that of the corporate world in which DoD acquisitions is attempting to model. For example, it is extremely rare for someone to start a project and see it through until completion within the DoD acquisition community. While the corporate world hires and fires strictly on the

⁴¹Brief: FORCEnet Capability Plan (FCP) and Development Process Decision Brief, NNFE Leadership Telecon, 10 July 2006.

⁴²Brief: FORCEnet Capability Plan (FCP) and Development Process Decision Brief, NNFE Leadership Telecon, 10 July 2006.

basis of someone's successes or failures, this is not the case in government. DoD's current strategy ignores lack of ownership and responsibility problems which are the norm in DoD acquisition. Without being able to hold anyone accountable, the business model will be ineffective. The top level figures of the business model are easy to duplicate and accountability can somewhat be managed before a turnover is undertaken. However, to truly be successful at all echelons, each member must have the same expectations and timeline to see a program through the process, whether it is a success or a failure. Then and only then, can corrective actions and ownership of a program take effect.

According to the Department of the Navy Information Technology Magazine, the new NNFE system is set up to mock that of private business.⁴³ To do this will require effective implementation of the concept of Chief Executive Officer (CEO), Chief Financial Officer (CFO), and Chief Operations Officer (COO) to be implemented in the Navy system.

The Naval Network Warfare Command, or NETWARCOM, which represents war-fighters who rely on C4I systems to accomplish their missions, is the CEO. The CEO prioritizes and integrates requirements from the fleet and identifies optimum current and future readiness levels. The CFO role is fulfilled by OPNAV, which evaluates the financial soundness of programs and develops financial plans to support war-fighting priorities. As FORCEnet's chief engineer, SPAWAR fulfills the COO role by aligning the processes by which the joint, interoperable architecture is designed. This role requires extensive collaboration with the Navy's acquisition community, which includes partner program executive offices and ASN RDA.⁴⁴

⁴³ CHIPS - The Department of the Navy Information Technology Magazine. New SPAWAR Commander Outlines Near, Long-Range Goals. CHIPS April - June 2006, by Steve Davis. http://www.chips.navy.mil/archives/06_apr/web_pages/RADM_Bachmann.htm (October 2006).

⁴⁴ CHIPS - The Department of the Navy Information Technology Magazine. New SPAWAR Commander Outlines Near, Long-Range Goals. CHIPS April - June 2006, by Steve Davis. http://www.chips.navy.mil/archives/06_apr/web_pages/RADM_Bachmann.htm (October 2006).

B. CRITERIA FOR SUCCESS

Success of ADNS is dependent upon funding. Although this statement is straightforward and simple, funding for ADNS must be a priority of the CEO, CFO, and COO concept of the business enterprise model. For this reason it is important to relate the importance of ADNS and its vitality to those items of interest of the JCA, Sea power 21, and the CNO. According to the SPAWAR brief on 18 September 2006, the Navy Fleet's top 10 priority list is as follows:

- Coalition and Multinational C4 Interoperability
- Reliable Satellite Communication
- Data Throughput
- Computer Network Defense
- Common Operational Picture (COP)/Maritime Domain Awareness (MDA)
- Real-time Collaboration
- Standards Based on Information Technology Service Management (ITSM) Best Practices
- Streamlined Administrative C4 Processes
- C4 Training
- War-fighting Network Sustainment and Life Cycle Management⁴⁵

With this list to guide as a priority for funding, the CFTs and PM for ADNS should exploit the multiple areas in which ADNS can address and satisfy these priorities. These areas must be fully detailed and explained to the CEO, CFO, and COO by either the PM or the CFTs to accurately employ the business enterprise model. This point emphasizes the magnitude of the interaction and knowledge sharing that must take place within a corporation. The same definitely must be adapted to the acquisition process if the business model of efficiency and effectiveness is truly the goal.

A final aspect that must be considered is that of the external influence of the organization. For instance, the CEO must maintain the support of his/her stakeholders to keep the position. The same can probably be assumed with regard to DoD acquisition

⁴⁵Brief: SPAWAR-Industry Executive Network (SIEN), 18 September 2006, Chris Miller, Acting PEO C4I.

and the political arena. As a point, ADNS is an older and relatively inexpensive system (in relation to the ACAT levels). Because ADNS is an incremental development system it is able to provide the most current and state-of-the-art technology to be installed on ships, aircraft, and shore sites. Due to the goals or priorities of the fleet, a logical solution and arguably the best solution is ADNS. But what happens when political agendas creep in? One could argue that when “pork” (See chapter I) or other peripheral influences take effect, the best solution does not always win out. This example could be expressed in the enterprise system of when the stakeholders put pressure on the CEO to conduct business and make decisions that may not result in the best interest of a particular department within the business, i.e. ADNS. How would the enterprise business model adapt to this type of scenario? Would bureaucracy take hold once again, which would result in the same old slow down in the process that we are use to? This seems to be the case, especially when we see an example of an expedited process to JCIDS that deals with big dollar items (ACAT I programs). Is this really the need of the COCOM? Or is it there to satisfy a congressman or his/her constituents?

C. POTENTIAL FOR EXPEDITED PROGRAM

Recently, there has been a push from the top levels of DoD acquisition to expedite the JCIDS process in an effort to provide a needed capability to the war-fighter. The Joint Tactical Radio System (JTRS) is such a program that is receiving attention with hopes of getting this product through the process and in the hands of the war-fighters in an expedited manner. To achieve this the

Joint Program Executive Office (JPEO) must define the roles, responsibilities, and authorities of Department of Defense (DoD) organizations involved in the JTRS program, to include acquisition management, technical, fiscal, managerial, and personnel resourcing aspects of the program. Second is to establish a new governance model that will outline the decision-making process for JTRS. The model must

address the need for greater agility and efficiency, while encompassing stakeholder concerns.⁴⁶

The tenets of the JTRS governance process will be to:

- a. Adequately address the requirements, technology development, and budget processes as an integrated whole.
- b. Ensure efficient decision-making at appropriate levels, and provide for an efficient review and coordination cycle process.
- c. Allow entry into the decision process when readiness is “in sight”.
- d. Reduce resource requirements and effectively manage risk in the development process consistent with program objectives and relationships to overall department capabilities.⁴⁷

If JTRS can be expeditiously processed through the current DoD acquisition system, why can't other programs? What sets JTRS apart from ADNS, other than its ACAT category?

The outline below indicates the objectives and measurements of the new JTRS process.

- **Objective:**
 - Reduce the time required to obtain approval of Milestone documents
- **Measurement:**
 - **Metric:**
$$\frac{\text{Time from PM sign to final approval (new process)}}{\text{Time from PM sign to final approval (old process)}} \times 100$$
 - **Method Data Obtained:** Through JTRS Governance execution. Old process baseline is the average time to staff various ACAT I/IA/II documents.
 - **Number of Measures:** Acquisition Strategy, TEMP, APB, and “CCA Package” time to approval
 - **Goal:** < 85%
 - **Reporting Frequency:** Each Milestone decision

After: Brief: Joint Program Executive Office, Joint Tactical Radio System Draft Acquisition Streamlining Process Brief. May 2006.

Figure 10. JTRS as an Expedited Acquisition Process

⁴⁶DoD Memorandum: Department of Defense, Acquisition & Logistics. Under Secretary of Defense, 1 August 2006, Memorandum for: JTRS. Subj: Joint Tactical Radio System (JTRS) Terms of Reference & Governance Porcess. Hon. Kenneth J. Krieg.

⁴⁷DoD Memorandum: Department of Defense, Acquisition & Logistics. Under Secretary of Defense, 1 August 2006, Memorandum for: JTRS. Subj: Joint Tactical Radio System (JTRS) Terms of Reference & Governance Porcess. Hon. Kenneth J. Krieg.

The JTRS program has experienced success in navigating the acquisition process, but there is more to this story. The DoD focus on expedited acquisition processes for JTRS may come at the expense of program performance. Since the start of JTRS Cluster 1, the program has experienced an estimated 31 percent growth in development cost, and a 44 percent schedule growth. At the same time, a mere 28 percent of design drawings were complete at the Design Readiness Review, and none of the technology had reached the Technology Readiness Level (TRL) of 6, the level at which DoD considers technology "mature." It is important to note that the JTRS program did not go through a formal JCIDS Milestone "A" review, instead entering the acquisition process directly into Milestone "B."⁴⁸ It would appear that the JTRS program expedited their acquisition processes at the expense of program performance. Several lessons can be inferred as a result of problems encountered by JTRS that may serve as a lesson for programs such as ADNS.

The problems experienced by JTRS highlights a significant disconnect between JCIDS and PPBES. The JTRS program originated through the JCIDS process, with promise to provide a jointly born capability that is a high priority for DoD. As a joint program office (JPO), funding in effect comes from the services. Despite the critical need for JTRS, the JPO must still validate its need for funding like any other program. Recall that in PPBES, funding is appropriated to Program Elements via the services. The faster programs can advance within JCIDS, the greater chance they have of full funding, given the calendar driven nature of PPBES. In the race to get funded faster, it is conceivable that the JTRS program raced through the acquisition process without regard to impacts on program performance. Once funded, it would likely take more than poor cost and schedule performance to kill a high priority ACAT I program. This is a trap that the program manager for ADNS, as well as PEO/C4I Space, may want to avoid when working within NNFE.

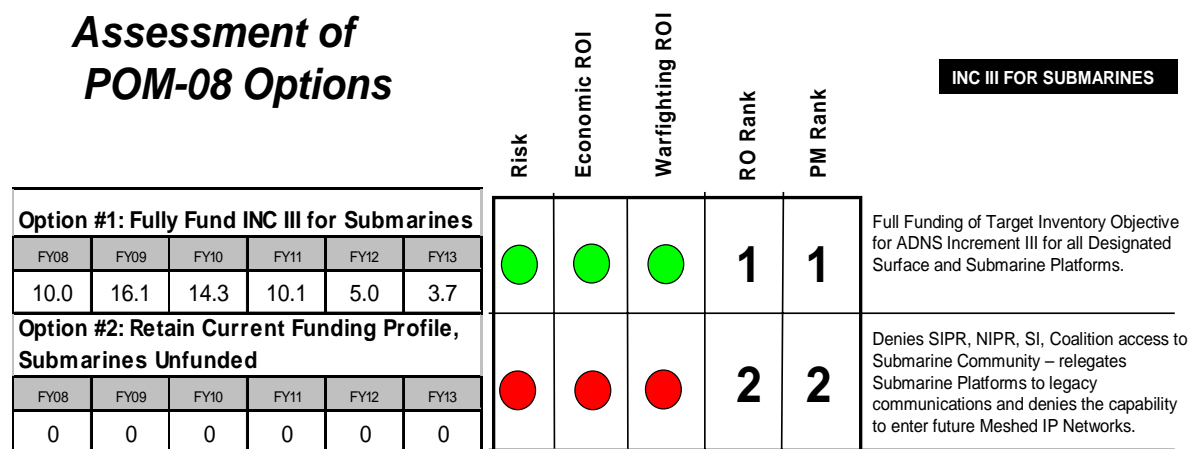
The issues experienced by the JTRS program also exposes disconnects between goals of the program manager and those of senior leaders. Success for the program

⁴⁸ U.S. Government Accountability Office. Defense Acquisitions: Major Weapon Systems Continue to Experience Cost and Schedule Problems Under DoD's Revised Policy. (April 2006). GAO-06-368.

manager is defined simply as obtaining funding for their program. As far as most program managers are concerned, their program is the best solution to fill the capability gap.

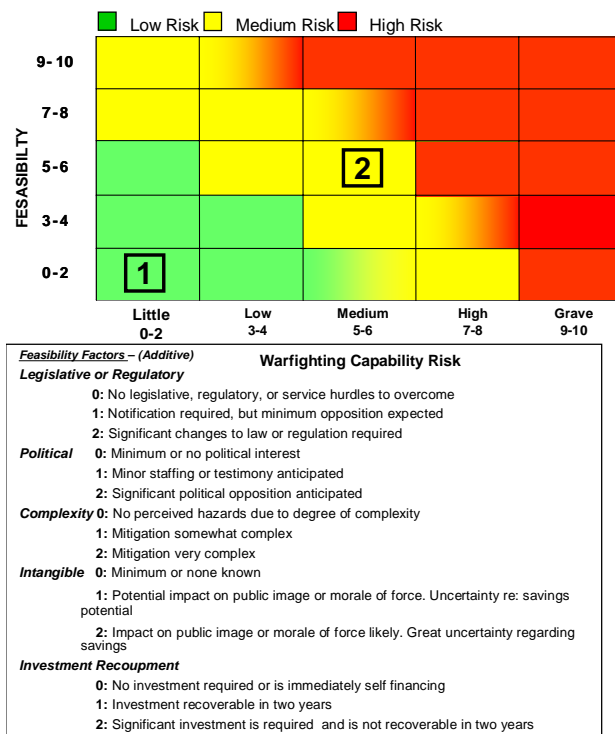
D. PROGRAM RISKS

The risks associated with ADNS assessed within the NNFE process should be thoroughly considered. Due to ADNS being installed around the fleet for over a decade, it is understandable how the PM for ADNS would be hesitant of this new business approach, thinking that a more jointly born program would be selected over ADNS. However, if risks are properly managed and are weighed correctly, this business process will prove to be no more risky. The charts below describe an example; the risk assessment for ADNS for submarines and options for POM 08, which are managing without utilizing the enterprise model.



After: Brief: Net-Centric Warfare (N-71) POM-08 Program Review//Automated Digital Network System (ADNS)//Robert Bradley/NC71C118, 1 December 2005.

Figure 11. **POM 2008 Options**



POM-08 - Risk Comparison

Risk Scorecard:

Feasibility Factor	COA #1	COA #2
Legislative	0	0
Political	0	0
Complexity	0	1
Intangibles	0	2
Invest Recoup	2	2
	2	5
Warfighting Risk	1	6

Warfighting Capability Risk

- 1-2 - Little to no-risk; warfighting unaffected
- 3-4 - Low risk, minor impact to routine non-combat operations/deployments
- 5-6 - Medium risk, degraded operations, increased loss of SSNs and SC, and increased A/C attrition, but little risk to campaign outcome
- 7-8 - High risk, loss of capital ship(s), significant A/C attrition, significant degradation to operations, campaign outcome at-risk
- 9-10 - Grave risk, major degradation to operations, campaign likely lost

After: Brief: Net-Centric Warfare (N-71) POM-08 Program Review//Automated Digital Network System (ADNS)//Robert Bradley/NC71C118, 1 December 2005.

Figure 12. Risk Comparison of POM 2008

E. SUMMARY

When using the enterprise business model, the assigned weight factors must be analyzed. Weight factors must account for options that PEO may choose to fulfill in place of ADNS. By accurately adding these determination factors to the mix, the same type of risk comparison can be achieved as indicated in Figure 12. It must be noted that for the business model or enterprise system to be effective and efficient, the best choice is that which is best for the organization and not just the best choice for the program under consideration. The following chapter will provide specific analysis of ADNS within the framework of NNFE.

THIS PAGE INTENTIONALLY LEFT BLANK

V. ANALYSIS OF ADNS WITHIN NNFE

A. FORCENET CAPABILITY PLAN (FCP)

To summarize, the FORCENET Capability Plan (FCP) is a key component in the transition to NNFE. The goals of FCP are:

- Align NNFE processes to a common capability framework
- Be scaleable and extensible to include larger NNFE domain, other PEO product lines and any mission area
- Support near, mid and far term planning and programming
- Integrate, synchronize and deconflict existing NNFE products and processes⁴⁹

In developing the FCP, PEO C4I/Space leadership encountered problems with the following:

- To which capabilities to align NNFE
- The FCP process in terms of authorities and scope for the initial effort
- Planning and management timeframes for FCP
- The development process of FCP
- The FCP product format⁵⁰

The first goal, alignment of NNFE processes to a common capability framework, is arguably the most important. As stated in the problem identification, a common definition of capability across the enterprise is lacking. If the ultimate goal of capabilities based budgeting is better investment decisions that maximize marginal value, then the enterprise must know what it is getting, and how much it costs. Most stakeholders within DoD have strong incentives to make and accept estimates that are unreasonably low. The common thinking is that a program that overruns its budget can "get well" later. Assessment of NNFE will follow with the assumption that other issues in the list above have been resolved.

⁴⁹ Brief: FORCEnet Capability Plan (FCP) and Development Process Decision Brief, NNFE Leadership Telecon, 10 July 2006.

⁵⁰ Brief: FORCEnet Capability Plan (FCP) and Development Process Decision Brief, NNFE Leadership Telecon, 10 July 2006.

An important distinction must be noted between applications of FCP to existing programs versus future programs. ADNS is an example of an existing program that must adapt to the enterprise construct. We attempt to identify potential problems in budgeting and funding for ADNS within the partially constructed enterprise framework and FCP processes. Future capability requirements will be generated that must be funded within NNFE, taking into account existing programs. We will assess whether FCP can provide a link between the program based, calendar driven PPBES and the capability based, milestone driven JCIDS. Implications for capabilities based budgeting are assessed.

B. ADNS SUCCESS WITHIN NNFE

Before discussion of how the ADNS program can succeed within NNFE, it is noted that success is defined differently among stakeholders. For example, war fighters want capability fast, program managers want funding for their programs, DoD senior leaders want smarter investment decisions, and Congress wants jobs in their district. The PEO and higher level stakeholders have expressed interest in more effective investment decisions that maximize marginal benefit across the portfolio of programs. For this, success means that ADNS is accurately broken down in terms of capability and incorporated into the enterprise framework. Budgeting decision makers may then address program funding requirements accurately, getting the appropriate amount of capability for the funds invested. The program manager is likely less concerned about the enterprise. The goal of the program manager is to obtain funding for the program so that the program can be executed, but that is where it ends. The program manager already knows that the capability provided fills the need.

The underlying assumption is that success for ADNS is defined as adequate funding to successfully execute a program that provides timely capabilities aligned with enterprise needs. Given the definition of success, general keys to being successful within NNFE are proposed:

- Align and articulate capabilities provided by ADNS with the enterprise construct
- Seek advocacy from users, resource officers, and other stakeholders

- Emphasize current and past success, and quantify where possible
- Do not rush the program through milestone decisions at the expense of successful program execution

The first key to success for ADNS is to align and articulate the capabilities provided by the program with the common capability framework established by implementation of NNFE. This is essentially a marketing and sales function, and is nothing new as program managers and resource officers already advocate their programs in a similar manner. NNFE merely changes the manner in which stakeholders will advertise and sell their programs.

The ability to point to a fielded asset and explain why more is needed makes a compelling argument for additional funding. Since ADNS is an established program that has successfully fielded incremental capabilities, it is seemingly easy to justify continued funding for the program. Regardless, even successful programs continually defend their funding. Demonstrated success of a fielded system is helpful, but does not guarantee cuts in funding.

Accelerating a program through the acquisition process is a risky endeavor. It is tempting for a program manager to do this for two reasons. First, progress through JCIDS is widely viewed as a measure of success for a program. Programs that get through milestone decisions are more likely to receive funding. The other reason relates to accountability. Excessive oversight that does not empower program management decisions and short tenures for program managers make it unlikely that the program manager will have to deal with the consequences of their decisions. Potential solutions to this paradox are to increase rigor in the JCIDS milestone decision process, or change incentives for program managers, possible through longer tenure or empowerment to make better decisions. Given the significant change in approach for ADNS Increment III to contractor development, care should be taken to ensure requirements are properly allocated and that the contractor has not overstated their ability to perform the work.

C. SUMMARY

By most measures, ADNS is a relatively successful legacy program. The program has successfully delivered capability to war fighters within cost and schedule goals. The program will likely continue to succeed despite a shift to a Navy enterprise framework. This indicates one shortfall of NNFE in facilitating capabilities based budgeting that is examined in the next section.

VI. IMPLICATIONS FOR CAPABILITIES BASED BUDGETING

A. NNFE ONLY A PARTIAL SOLUTION

DoD and the Department of the Navy are working toward capabilities based budgeting via an enterprise construct. PEO C4I/Space is in the process of organizing the budget process around NNFE and a common capability framework. A common capability framework is a necessary component for capabilities based budgeting, but it is not the only required component, nor does it address a number of key obstacles to a true capabilities based budgeting system. The other critical requirement is accurate cost estimation, which suffers as a result of problems identified at the start of research, such as misalignment of stakeholder objectives, lack of metrics for investment effectiveness, and disconnects between JCIDS and PPBES. Successful program execution also suffers as a result. NNFE fails to address these issues, and more work will likely be required to further develop the enterprise model until it is fully adopted at all levels and addresses deficiencies.

The most significant contribution of NNFE toward capabilities based budgeting will be the creation of a common capability framework. This framework will not be perfect, nor does it need to be. A common capability framework may be successful if it meets the following criteria:

- Gets buy-in from stakeholders at all levels
- Retains flexibility for urgent or unanticipated capability requirements

Stakeholder buy-in is important because lack of stakeholder advocacy would be an insurmountable obstacle. Congress, Services, program managers and end users all have varying goals for a weapon system, and a common capability framework that meets all goals does not exist. In this case, a 70 to 80 percent solution may work well, provided the common capability framework maintains enough flexibility to be adjusted in response to more urgent war fighter needs that weren't fully anticipated. Periodic reviews would almost certainly be required, but this may not be enough to overcome misalignment of enterprise goals.

Although the ADNS program is likely to succeed within the NNFE framework, NNFE will likely not be an effective link or "crosswalk" between JCIDS and PPBES. NNFE may succeed in driving a common definition of capability that is required for smarter investment decisions, but it falls short in addressing other root causes of program and budgeting problems. Specifically, NNFE does not:

- Change incentives for key stakeholders, primarily program managers
- Streamline or reduce oversight
- Readily provide metrics for measuring investment effectiveness
- Increase accountability by reducing turnover

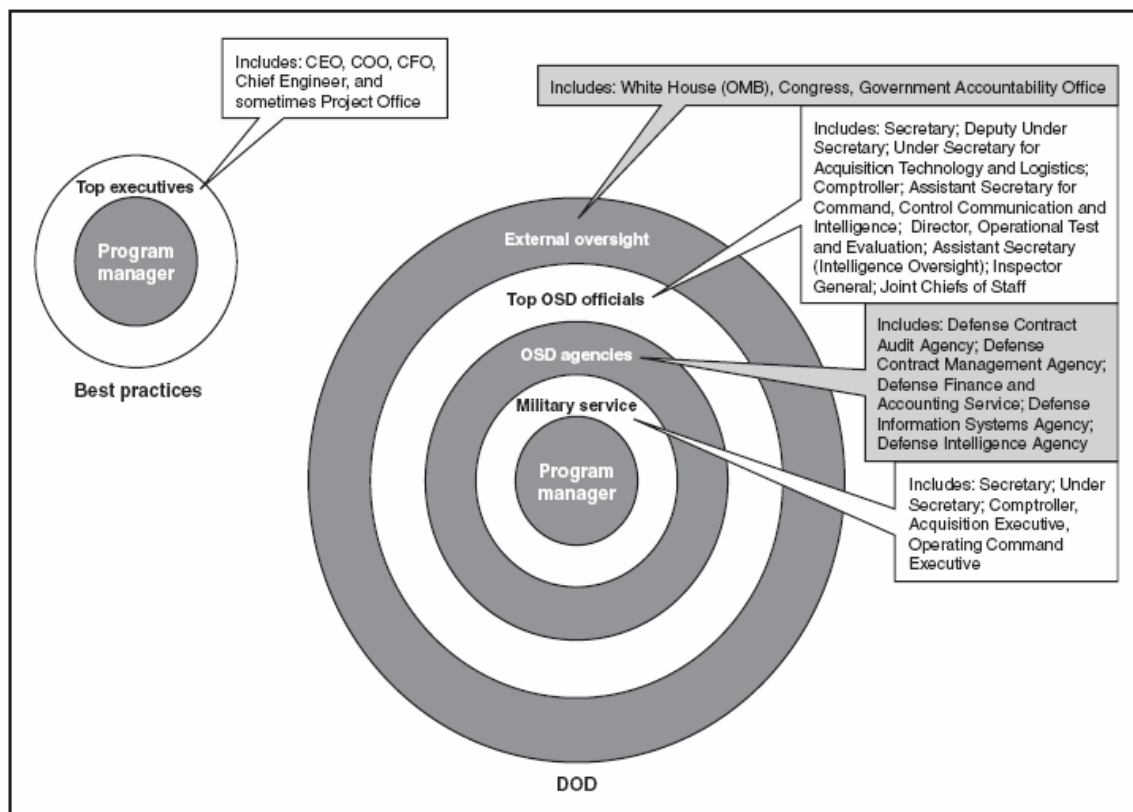
NNFE does not significantly change incentives for program managers. Obtaining funding for their respective programs is still the top goal, and program managers will not be dissuaded from the belief that their programs are the best solution for capability gaps. In response to NNFE, program managers will likely find a way to make their program fit within the new framework in whatever manner best attracts funding. New programs that start within NNFE and do not provide redundant capability within the common capability framework will also do well in receiving funds.

Once legacy and new program leadership have figured out how to navigate NNFE, the race for funding is on. Programs are still funded within the calendar driven PPBES, program managers want to get their programs established, and high turnover of program managers makes accountability difficult, if not impossible. Overhauling the military personnel system to leave program managers in place and provide incentives for good long-term program performance may be cost prohibitive, but changing policy to require more stringent milestone decision reviews may be easier to implement. If program managers are required to demonstrate critical technologies, present a detailed life-cycle logistics plan, or answer detailed production questions, they may think twice before rushing their program to a milestone decision. No matter the solution chosen, it is important to get the goals of program managers in line with enterprise goals. Of course, program managers are not the only stakeholders.

Significant oversight exists in the acquisition process, and program managers do not have final say in program milestone decisions. Figure 13 provides an illustration of

the many stakeholders involved in the process. One goal of NNFE would be to move toward the streamlined, corporate model in the upper left of the figure. This may not be possible for a variety of reasons. A great deal of funding resources are at stake, stakeholders would be unwilling to give up their respective roles in the process, and existing laws would have to be abolished or re-written to accommodate a move to a more streamlined oversight process.

Figure 11: Commercial vs. DOD Oversight Environments



Source: GAO.

After: U.S. Government Accountability Office. Best Practices: Better Support of Weapon System Program Managers Needed to Improve Outcomes. (November 2005). GAO-06-110.

Figure 13. **Commercial vs. DoD Oversight Environments**

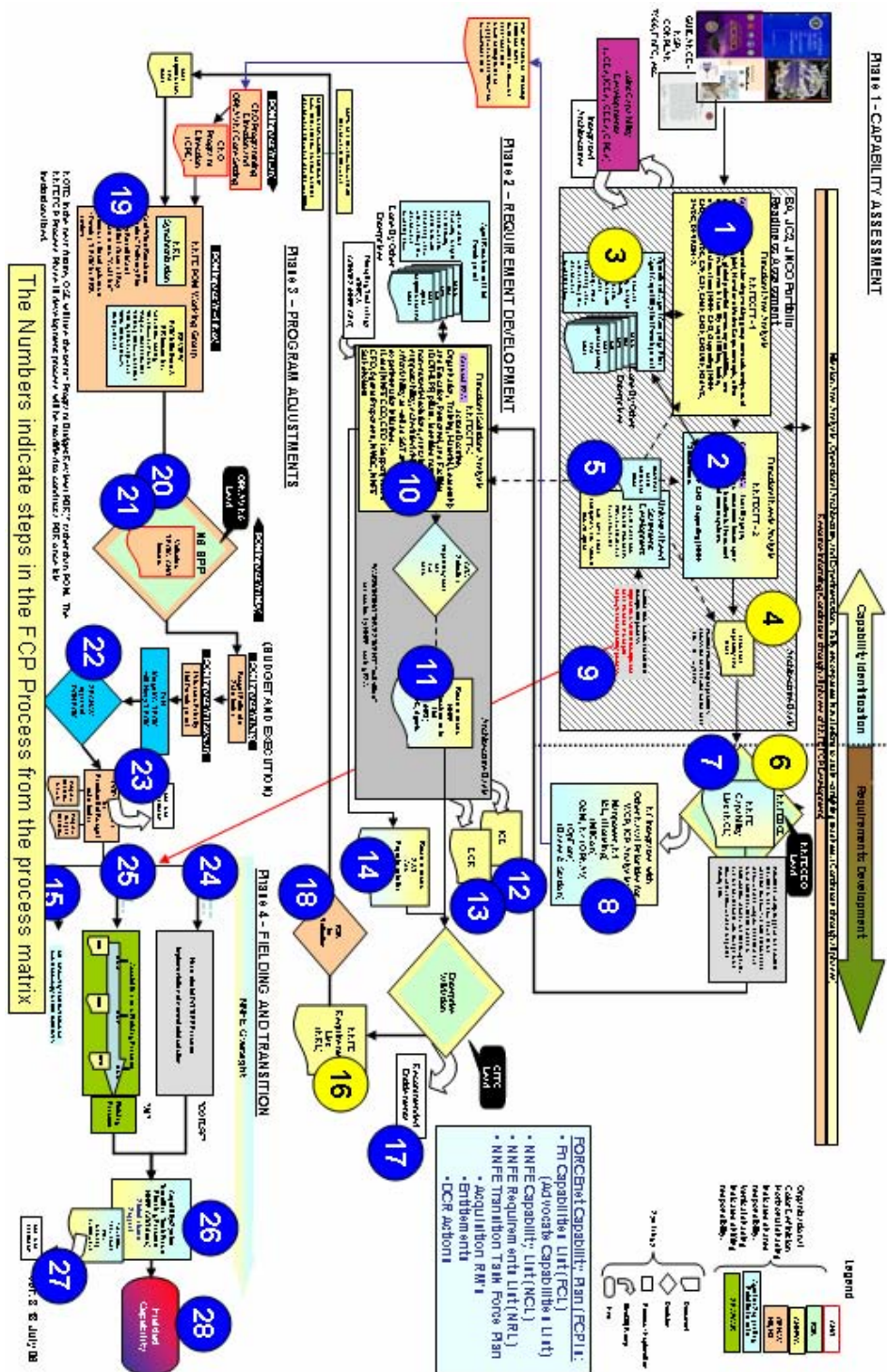
Collection of accurate metrics for investment effectiveness will be difficult within NNFE. The enterprise must carefully consider their choice of metrics. For example, a program may get a favorable Milestone B decision, giving the perception that a program

is successfully executing. If progress through JCIDS is the metric, then this is a good investment. A year later, the program runs significantly behind schedule and over cost, perhaps falling prey to the JTRS trap. Progress through JCIDS may not be an accurate reflection of true program progress. Earned Value Management may be a better metric, but is still not a perfect barometer of actual program performance.

It is possible that capability requirements may change, also affecting investment priorities. Once a program is funded, it may be difficult to reverse a poor decision. In PPBES, programs are more visible than capabilities. Senior DoD leaders and members of Congress still view individual programs in the context of PPBES. These more senior level stakeholders may be reluctant to allow the Navy to reverse a bad investment, whether due to a change in capabilities required or a poorly executed program. It is not clear that these possibilities have been considered in development of NNFE. This leads into the question of whether NNFE will be an effective link between JCIDS and PPBES.

B. NNFE AS LINK BETWEEN JCIDS AND PPBES

As DoD and the Navy continue to develop an enterprise construct with a goal of capabilities based budgeting, future programs that are born of capabilities-based planning will be integrated with existing programs based upon a common capability framework. Figures 14 and 15 illustrate where NNFE is expected to fit within JCIDS and PPBES. Figure 14 displays where NNFE integrates with the calendar driven PPBES at the OPNAV level. Figure 15 details the FCP, pending final approval. The most substantive changes illustrated seem to reside almost entirely within the JCIDS process. While the input to the programming process is changed, and capability plans are considered throughout, PPBES is not impacted. Funding is still based on programs, even if they are better aligned in terms of capabilities. The budget process is still largely calendar driven, while execution continues in a milestone framework. Even if the right mix of capabilities is funded, program execution is not any more certain under the new framework. The probability of successful program execution is an important factor in making investment decisions that maximize marginal value.



Brief: NNFE FCP - OPNAV Integration, 4 Aug 2006

Figure 15. Proposed FCP Process

Figure 14 illustrates how FCP relates to PPBES. It would appear that FCP merely reorganizes requirements generation; programming, budgeting, and execution processes remain essentially unchanged. In the coming years, as new programs come on line and legacy programs reach the end of the life cycle, investments in programs should be better aligned with capabilities. In effect, budgeting would be based on capabilities, but this does not necessarily mean that investment decisions will result in maximization of marginal value, or that programs will be executed more efficiently.

Figure 15 illustrates the proposed FCP process. Of particular interest here is Phase 3 - Program Adjustments. This is where the POM is realigned to account for changes in capability requirements, gets submitted, and budget decisions are returned. Phase 4 - Fielding and Transition then illustrates fielding of capabilities either through DOTMLPF or JCIDS. If successful program execution is to be a factor in investment decisions, it would seem that an iterative feedback loop should be inserted that flows back to the POM process. This raises an interesting question. Assuming capabilities are perfectly aligned, and programs are established that are not redundant, does this create increased risk if a program fails to execute and is subsequently canceled? The question is not within the scope of this research, but does highlight the importance of successful program execution as a factor for investment decision making.

C. NOTIONAL DECISION SUPPORT MODEL

A decision support model to aid in investment decision making would be extremely difficult given the relative immaturity of NNFE and the core issues identified by this study. To provide perspective on the challenge, it may be useful to consider the Bowl Championship Series (BCS) format in NCAA Division IA football. The goal of that system is seemingly simple: match the two best teams in college football in a championship game at the end of the season. However, the resulting match-ups since inception of the system nine years ago are widely viewed as controversial. Much like a common definition of capability, a common definition of what makes a football team the best out of 117 NCAA Division IA programs is lacking. Stakeholder goals are misaligned with the enterprise goal of matching the two best teams, similar to

misalignment of goals within defense acquisitions. The enterprise goal of a one versus two match-up conflicts with the monetary incentives of conferences, television networks, and bowl game organizers. In defense acquisitions, Total Obligation Authority is sometimes coveted by stakeholders despite what is best for the defense enterprise. The BCS continues to evolve after nine years of failure to accomplish a simple goal, and it will continue to fail because the core issues have not been resolved.

This is illustrative of the problem in producing a decision support model for investment decisions within NNFE. Needless to say, goals associated with better investment decisions across a large enterprise raise the level of difficulty exponentially. It is possible to describe a notional model, provided the problems identified are resolved. Following are proposed requirements for a notional model:

- Stable capability requirements derived from a common framework
- Realistic cost estimates
- Accurate measures of program progress

This is a tall order. Assuming these requirements could be fulfilled, enterprise stakeholders will have to agree on priorities for capabilities. This is another tall order. Given the relative immaturity of NNFE implementation, unresolved core issues, and the overall complexity of defense acquisition, a comprehensive investment decision support model is simply not feasible at this time.

D. SUMMARY

NNFE effectively moves the enterprise toward a common capability framework. At present, NNFE does not provide useful metrics, streamline oversight, align stakeholder incentives, or increase accountability for investment decisions. Until these fundamental issues are resolved, an investment decision support model is not feasible. This leads to possible areas for further research that are identified in the findings section.

VII. CONCLUSION

A. SUMMARY OF FINDINGS

The purpose of the project is to better understand ADNS, NNFE, and the goals of the enterprise system. Following development of this background information and projecting how ADNS is likely to succeed in the NNFE framework, two fundamental research questions were addressed. The first question: Does the enterprise system reduce the discrepancies between PPBES and the acquisition decision process for both budgeting and defense asset acquisition? The second question is to what extent the discrepancies and resulting problems discovered during this research project be resolved to improve national defense budgeting within NNFE and asset acquisition decision effectiveness in DoD?

Within the context of JCIDS, PPBES, and the acquisition system as a whole, some core issues have been identified that are obstacles to sound investment decisions. Problems identified include:

- No common definition for capability
- Lack of metrics for investment effectiveness
- Stakeholders misalignment with enterprise
- Competition between programs
- Turnover and accountability

Recent efforts have been undertaken by the Navy to organize within an enterprise construct in order to make smarter investment decisions, moving toward true capabilities based budgeting. Programs within the PEO C4I/Space portfolio fall under the Naval Netwar FORCEnet Enterprise (NNFE), and the organization is working toward compliance with the Navy initiative.

It is likely that programs such as ADNS will succeed within the NNFE framework. However, NNFE at present does little to address the problems identified. NNFE will force stakeholders to focus on and develop a common capability framework, but this is only a partial enabler of capabilities based budgeting. NNFE does not account

for over-optimistic cost estimates, and does not address the root causes which include misalignment of enterprise goals among stakeholders, lack of accountability for underperforming programs, and disconnects between JCIDS and PPBES. Over time, NNFE may result in programs that are essentially "capabilities based," but this does not equate to better execution of programs or maximization of marginal value.

A notional decision support model is discussed, but implementation is not feasible until underlying system deficiencies have been resolved. More study is needed to determine if NNFE can address these deficiencies, or if a different course of action is required.

B. CONCLUSION

In general, the problems encountered during research are large and complex. It is very unlikely that a "silver bullet" solution exists to the question of budgeting for capabilities. However, stakeholders at various levels within the enterprise may be able to judiciously apply business strategy and some corporate best practices in mitigating impacts resulting from the issues identified.

Ultimately, it is unclear whether NNFE will provide a framework for better investment decisions based on capabilities that maximize marginal value. Implementation of NNFE carries significant implications for capabilities based budgeting, and appears to be moving the enterprise toward a common capabilities framework. While NNFE presently falls short in some respects, the process is very immature, and impacts of implementation may not be fully realized until programs have been given time to work within the framework.

C. AREAS FOR FURTHER STUDY

During research, the following questions were identified that were beyond the scope of this research, but may be potential candidates for further research to improve acquisition investment decisions.

- Correlation between an expedited acquisition process and effective program execution. Are programs that speed through the milestone process at risk for poor cost and schedule performance in the long-run?
- What are the appropriate investment metrics for determining return on investment in defense acquisitions?
- How should a common capability framework be developed?
- How can incentives for program managers be better aligned with enterprise goals?

THIS PAGE INTENTIONALLY LEFT BLANK

LIST OF REFERENCES

- 2006 Acquisition Symposium Lecture. May 17, 2006. Honorable Kenneth J. Krieg, USD (AT&L) Lecture.
- Brief: FORCEnet Capability Plan (FCP) and Development Process Decision Brief, NNFE Leadership Telecon, 10 July 2006.
- Brief: Joint Program Executive Office, Joint Tactical Radio System Draft Acquisition Streamlining Process Brief. May 2006.
- Brief: Net-Centric Warfare (N-71) POM-08 Program Review//Automated Digital Network System (ADNS)//Robert Bradley/NC71C118, 1 December 2005.
- Brief: NNFE FCP - OPNAV Integration, 4 Aug 2006
- Brief: POM-08 N6 Sponsor Program Proposal, Admiral Mullen 19 April 2006.
- Brief: Program Executive Office C4I and Space, PMW160. ADNS INC III ACT 10 July 2006, CDR Scott Heller.
- Brief: SPAWAR-Industry Executive Network (SIEN), 18 September 2006, Chris Miller, Acting PEO C4I.
- CHIPS - The Department of the Navy Information Technology Magazine. New SPAWAR Commander Outlines Near, Long-Range Goals. CHIPS April - June 2006, by Steve Davis.
http://www.chips.navy.mil/archives/06_apr/web_pages/RADM_Bachmann.htm
(October 2006).
- Defense Acquisition Guidebook, Chapter 3.1.2. Lifecycle Cost Categories and Program Phases. December 16, 2004. <http://www.dau.mil/> (October 2006).
- Defense Business Transformation, Business Enterprise Priorities. September 25, 2006.
http://www.DoD.mil/dbt/priorities_beps.html (October 2006).
- Discussion, understanding capabilities key for sea basing, official says. (2006). *Defense Daily*, 229(12), 1.
- DoDD 5000.1. May 12, 2003. <http://www.dau.mil/> (November 2006).
- DoD Memorandum: Department of Defense, Acquisition & Logistics. Under Secretary of Defense, 1 August 2006, Memorandum for: JTRS. Subj: Joint Tactical Radio System (JTRS) Terms of Reference & Governance Process. Hon. Kenneth J. Krieg.

Email communication with representative of PEO C4I & Space, 19 September 2006. House committee approves civilian-military pay parity. June 7, 2006, by Karen Rutzick. <http://www.govexec.com/dailyfed/0606/060706r1.htm> (October 2006)

Los Alamos Study Group, United States Military Spending, February 10, 2006 by Damon Hill and Greg Mello, <http://72.14.209.104/search?q=cache:Xle90j9yOd0J:www.lasg.org/USMilitarySpending.pdf+DoD+supplemental+for+2007&hl=en&gl=us&ct=clnk&cd=4> (June 2006).

McCaffery, J. L., & Jones, L. R. (2004). *Budgeting and financial management for national defense*. Greenwich: Information Age Publishing.

Military Information Technology Online Archives, Interview with Dennis M. Bauman, Program Executive Officer, C4I & Space, December 22, 2004. *Bauman was interviewed by MIT Editor Harrison Donnelly*. <http://www.military-information-technology.com/article.cfm?DocID=758> (October 2006).

Navy PPBE and a Programmatic and Budget View of POM08, July 2006, VADM Crenshaw Video Teleconference with NPS.

Net-Centric Warfare (N71) POM=08 Program Review, 1 December 2005. N71C118.

Teleconference with PEO C4I/Space representative. April 21, 2006.

Teleconference with PEO C4I/Space representative. April 28, 2006.

Teleconference with PEO C4I/Space representative. May 2, 2006.

United States Army Material Command, Ready and Relevant with Lean Six Sigma. Lean Six Sigma Basics. <http://www.amc.army.mil/lean/page.aspx?id=0> (October 2006).

United States Department of Defense: DoD receives new capabilities development system.(2003). *M2 Presswire*, 1.

United States Government Accountability Office. Best Practices: Better Support of Weapon System Program Managers Needed to Improve Outcomes. (November 2005). GAO-06-110.

United States Government Accountability Office. Defense Acquisitions: Major Weapon Systems Continue to Experience Cost and Schedule Problems Under DoD's Revised Policy. (April 2006). GAO-06-368.

INITIAL DISTRIBUTION LIST

1. Defense Technical Information Center
Ft. Belvoir, Virginia
2. Dudley Knox Library
Naval Postgraduate School
Monterey, California